IDG.net

They're lean, they're fast

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An economist predicts year 2000 will force extreme measures. 68

COMPUTERWORLD

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Illustration by Elise Wrastyn

Network NIGHTMARES

By Patrick Dryden and Mitch Betts

If it isn't an El Nino-induced power outage, it's a construction backhoe that rips out a bundle of fiber-optic cables, or 760 end users who suddenly sign up for PointCast news feeds. Add the fear of software bugs in networking gear, routing complexity and upgrade errors – which triggered the recent AT&T frame-relay outage – and you have a good idea what makes corporate network managers lose sleep at night. At a time when business units are demanding more reliability, a *Computerworld* survey of 103 network managers found that corporate networks suffered an average of 14 hours of downtime during the past 12 months.

Network nightmares, page 20

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Year 2000 coders face 'bloodbath'

DEMAND, SALARIES MAY PLUNGE AFTER BUG IS FIXED

By Thomas Hoffman and Barb Cole-Gomolski

"THERE'S A DIRTY little secret that CIOs don't want to talk about," whispers the head of internal IS consulting at a prominent Wall Street brokerage.

He's talking about what to do with year 2000 programmers once the millennium bug is fixed and those workers can no longer command six-figure salaries.

"The super-high premiums being paid for year 2000 [work] won't continue," said Stephen Greif, a year 2000 manager at the Johns Hopkins University Applied Physics Laboratory in Laurel, Md.

"It's going to be a bloodbath," said Lina Fafard, a vice president at The Partners, a Torrance, Calif.-based technical recruiter. "And people making [big] money today will overextend themselves."

"Make no bones about it, Cobol programmers being paid exorbitant salaries are either going to be fired or will have their salaries cut," agreed Stephanie Moore, a year 2000 analyst at

Millennium, page 16

OPEN YOUR WALLET

- **Cobol programmers in New York can command $120,000 salaries.**
- **Contract programmers generally earn $75 per hour and up.**
- **Salaries for year 2000 team members are expected to jump 20% to 50% next year as demand for those skills intensifies.**

Sources: Meta Group, Inc., Stamford, Conn., Giga Information Group, Cambridge, Mass., Gartner Group, Inc., Stamford, Conn.

FTC expected to sue Intel

▸ *Bullying competitors, monopoly at issue*

By Kim Girard

THE OTHER ANTITRUST shoe may be about to drop.

A wave of published reports last week insisted that investigators for the Federal Trade Commission will urge the agency to file an antitrust lawsuit against Intel Corp., charging the microprocessor maker with bullying competitors and engaging in monopolistic practices. The action could come as soon as a week to 10 days from now.

"I think [Intel] has to stop using its intellectual property as a club to bring people to bay," said Steve Newborn, an antitrust lawyer and former trade commission investigator who expects the group to take some action against the chip giant.

The easiest way to do that is through an order that restricts Intel's business practices without overregulating, Newborn said. "They want to use a scalpel rather than a bludgeon," he said.

At worst, analysts said the FTC could break up Intel, cracking open the market to its group of niche rivals. At best, nothing will happen, and the

FTC, page 87

Millennium puts big projects on back burner

By Patrick Dryden

NEARLY HALF the IS managers in U.S. businesses say the millennium deadline has forced them to delay or scale back big projects to concentrate on fixing year 2000 problems.

As the year 2000 deadline approaches, many information systems managers find themselves behind schedule and have decided to shift resources from other projects to their millennium efforts. According to a recent survey by International

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Microsoft lets PC maker remodel Win 98 screen. Page 3

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GETTING THE VISUAL BASICS
Tools tuned for Win 98 to be unveiled at Tech Ed. Page 6

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'White-hat' hackers reveal network weak spots. Page 8

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UP FRONT

Mail call

The debate over proprietary vs. open standards is as old as the hills of Silicon Valley, and recent developments in the world of E-mail promise to prolong that discussion.

E-mail for a long time was an intensely private technology, from the early days of IBM's Profs to the more recent iterations of Lotus Notes.

But standards-based E-mail is finally coming of age. As our hands-on tests in Review Center (see page 62) demonstrate, users can increasingly rely on low-cost, Internet-based E-mail to provide most of the powerful features of their proprietary cousins. And check out the numbers on page 65: In *Computerworld*'s tests, Qualcomm's WorldMail offered comparable performance to Microsoft's Exchange at one-sixth the price.

What's driving the surge of Internet mail? Standards are finally coming of age. The alphabet soup of public-domain protocols such as LDAP, IMAP4, POP3 and SMTP are transforming the landscape of the E-mail market. Simply put, every E-mail vendor is moving to support those standards, some faster than others.

Standards-based E-mail is finally coming of age.

In particular, keep an eye on the Lightweight Directory Access Protocol (LDAP). This simple standard for managing information about users is moving at light speed into the corporate mainstream. LDAP still has plenty of shortcomings. But it does create a baseline for interoperability among mail systems.

That doesn't mean you should run out and replace a thousand CC:Mail seats with Eudora freeware. But it does mean you increasingly have a defense against vendor lock-in. Internet E-mail presents some mighty enticing attributes these days, and that fact alone should keep proprietary E-mail vendors on their toes.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE

"I find it so obnoxious when people use their cellular phone in public that I'm making notes about it on my HPC for a future opinion piece."

E-Mail Rich Tennant at thewave@tiac.net

Microsoft bends, a little

▸ *Vendor lets Gateway customize Win 98 desktop*

By Kim Girard and Kim S. Nash

GATEWAY has negotiated a special deal with embattled Microsoft Corp. that will let Gateway customize the initial desktop screen on Windows 98 and offer Netscape's rival browser.

Giving PC makers the ability to customize the interface and choose which software and services appear on the default desktop screens in Windows 98 is one of the issues in the antitrust suit filed by the federal government and 20 states against Microsoft.

Despite Gateway's deal with Microsoft to preinstall Netscape Communications Corp.'s Navigator and its icon, other PC makers said they are unlikely to follow suit.

TERMS OF THE DEAL

Under the new deal, North Sioux City, S.D.-based Gateway can offer Netscape's browser as the default to PC customers who sign up for Gateway's Internet service, gateway.net. Gateway also can direct users to gateway.net rather than Internet services approved by Microsoft.

"There is nothing new here. OEMs have always had a great deal of flexibility and latitude," a Microsoft spokesman said. "If they want to preset Netscape as the default browser, they are empowered to do that. They can fill the desktop with [their own] icons if they choose."

The spokesman couldn't answer why, if this was true, the company had to negotiate a new agreement with Gateway.

And to act on that choice, Gateway had been in talks with Microsoft "for months" about how the PC maker might implement Windows 98, the spokesman added.

Microsoft has argued that it needs to preserve the integrity of the user interface, which includes the content and arrangement of the desktop and startup screens. But the fact that Microsoft can approve the desktop contents is one reason for the antitrust suits that claim the Redmond, Wash.-based company unfairly hurt competitors by adding extra steps and costs for users who want choice.

Microsoft has made similar capitulations for other Internet service providers in the months leading up to the May 18 filing of antitrust suits. But Microsoft said the Gateway agreement wasn't made because of government scrutiny. Some other PC vendors do provide Navigator to customers. For example, NEC Corp. installs Navigator for corporations if requested at no charge; Dell Computer Corp. will install it if requested for $81; and IBM preinstalls it on some models. But the vendors don't modify the desktop interface.

Several PC makers said they were nonplussed by Gateway's announcement. "I don't see this as a big deal at all," said Bob Levin, vice president of PC systems at Mountain View, Calif.-based NEC. Users can easily customize an NEC desktop screen to include either browser, he said.

Dell spokesman T. R. Reid said the company has no plan to change its desktop setup because Microsoft's browser is cheapest and easiest for Dell to install with the rest of the Microsoft platform.

And to customers, the browser makes little difference, he said. □

Monopoly fears transcend high tech

By Kim S. Nash

THE GOVERNMENT LAWYERS going after Microsoft Corp. haven't gone far enough to suit some companies competing against the software giant on the Internet.

Online bankers, newspapers and travel agents, among others, worry that as Microsoft stretches its tentacles their way, their electronic-commerce sales will get strangled.

"Microsoft is a threat. That's something we have to deal with more and more," said Michael Silver, general manager at Tribune Media Services, the online arm of the company that owns *The Chicago Tribune*.

Silver was referring to the fact that Microsoft is moving into sectors of the World Wide Web that have little to do with software.

Sabre's Terry Jones: "We know all about screen bias because we invented it" as part of the Sabre reservation system

It brokers car sales for Mi-

Monopoly fears, page 86

Breaking news: Intel delays Merced chip

Intel Corp. last week announced a delay of at least six months for its Merced 64-bit microprocessor. Sample volumes will be available in 1999, and larger production volumes won't be ready until mid-2000.

"What Intel is doing, really, is warning their OEMs not to expect maximum volumes until six months after the company originally planned the Merced release," said Dean McCarron, principal at Mercury Research in Scottsdale, Ariz.

This in turn will delay the availability of Merced-based servers. "But there's plenty of [options] available," McCarron said, citing multiprocessor servers based on the Pentium II processor.

Still, the new delivery schedule is pretty much still within the window that a lot of analysts were anticipating. "We were always expecting relatively small numbers in 1999," said Tony Massimini, an analyst at Semico Research Corp. in Phoenix.

Stephen Smith, Intel's vice president and general manager, said the company has now reached a point in the processor's development cycle where it can more precisely schedule the release and production dates.

Merced is the first processor in Intel's IA-64 product family and is under development with Hewlett-Packard Co.

And though Intel's announcement was unexpected, it isn't unusual, McCarron said. He said it appears that the delay is due in part to a new manufacturing process with the Merced.

— Stewart Deck and Michael Goldberg

James Ray says a jump in customer traffic led Staples to balance the load on its Web servers. **Servers & PCs, page 47**

Leadership guru Dick Dooley talks about how budding leaders should develop skills. **Managing, page 87**

Rajiv Shukla and other Indians worry about their work visas as U.S./India tensions rise. **Corporate Strategies, page 33**

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Government action on year 2000 not enough

▸ *Users demand feds enforce compliance*

By Matt Hamblen

PRESIDENT CLINTON last week called on businesses to fix their year 2000 problems, but critics said the federal government hasn't gone far enough to force private-sector compliance.

Clinton said he is working with other countries to share information and "do everything we can do to make sure that when the new millennium starts, it's a happy event and not a cyberspace headache."

"I would urge everyone in America to make sure that they have done everything they can do within their own business sectors to be ready for this," he added.

In addition to Clinton's impromptu comments at a White House appearance, the Group of Eight, the seven largest industrialized countries plus Russia, last week agreed to share year 2000 information to help prepare other countries and businesses.

The G8 called for a meeting of experts in Moscow at an unspecified date.

NO ASSURANCE

But analysts and business leaders said the government's efforts are too little, too late.

Despite what the president said, "it will be a cyberspace headache," said Capers Jones, year 2000 expert at Software Productivity Research, Inc. in Burlington, Mass.

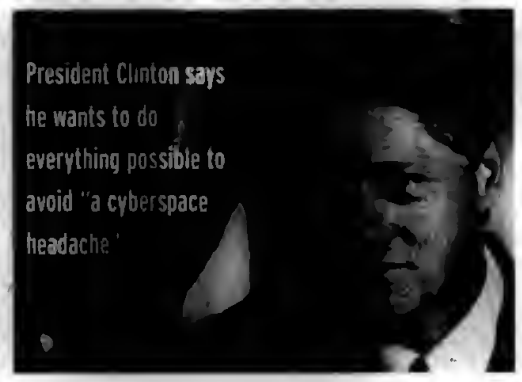
He said Clinton, Vice President Al Gore and Year 2000 Conversion Council Chairman John A. Koskinen "are not doing enough" to raise visibility or force the private sector to get ready for the conversion.

"Since it's obvious government and the private sector will not be ready, there should be more contingency planning to put the phones back to work and the power back up once it's down," Jones said.

The government has taken some steps that affect the private sector, such as requiring financial disclosures and monitoring compliance at banks and nuclear power plants.

CALL TO ACTION

Hoping to spur more government action, business users met last week with Federal Communications Commission officials to urge the FCC to prod major voice and data carriers to reveal their year 2000 compliance schedules and testing procedures.



Business users said they need to test their electronic data interchange systems on year 2000-compliant networks.

"We said [to the FCC], 'We're looking to you to flex some muscle with the carriers,' but so far, I don't think the FCC has gone to the gym," said Brian Moir, counsel for the Dallas-based International Communications Association, a user group of 500 large companies.

Cathy Hotka, vice president of information technology at the National Retail Federation in Washington, also attended the FCC meeting and urged the agency to act as a trusted third party for posting the results of carriers' interoperability tests. FCC officials said they are assessing whether the carriers need more prodding to share information. □

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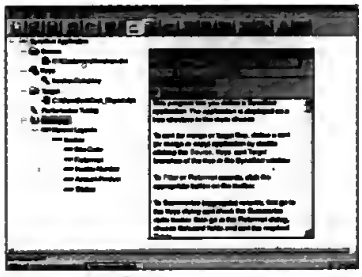

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Integration not key to Tyco merger

▸ *But analysts see business value in using U.S. Surgical's SAP system*

By Barb Cole-Gomolski

IT IS WIDELY KNOWN that the ability of two companies to meld their information systems can make or break a merger. But what if both the acquiring company and the target have been on acquisition tears?

That is the case for Tyco International Ltd., which last week announced plans to buy U.S. Surgical Corp., a Norwalk, Conn., maker of surgical items, for about $3 billion.

Tyco said it expects to save $160 million per year by combining U.S. Surgical with its medical products operation, but experts said that would be tough without integrating the two companies' information systems.

Tyco runs a decentralized operation. U.S. Surgical, however, is in the midst of implementing SAP AG's R/3, which will tie together the financial, manufacturing and human resources applications across its units.

"There's really no value in spending money on IS just for the sake of consistency," said J. Brad McGee, a senior vice president at Tyco. The company's policy is to keep in place the IS infrastructure of its acquisitions and to extract the financial data it needs from its existing systems, McGee said.

SOME UNIFICATION

But McGee said he does anticipate moving Tyco's other two medical supply businesses — Kendall Co. in Mansfield, Mass., and Sherwood-Davis & Geck in St. Louis — to SAP. That would help the company "present a united front to customers," he said.

That is the key, according to John Weisel, a partner in Andersen Consulting's financial services practice in New York. "If there are overlapping customers, each company needs to be able to look at how the customer interacts with all of them," he said.

Generally, it costs more to run a business like a portfolio, with lots of separate entities, Weisel said. "Companies do it because they want to be able to add and subtract pieces easily," he said.

But because the Tyco subsidiaries and U.S. Surgical produce medical supplies, it makes sense to align manufacturing, distribution and customer service on some level, Weisel said.

Tyco, based in Hamilton, Bermuda, but operating in the U.S. out of Exeter, N.H., spent nearly $2 billion in January for a division of American Home Products Corp., and last month picked up Wells Fargo Alarm in King of Prussia, Pa. The company is growing its business, which includes medical supplies, machine valves, alarms and fire protection systems, largely through buyouts.

U.S. Surgical has had its share of acquisitions, its most recent being the Valleylab unit of Pfizer, Inc. in February.

An electronic data interchange (EDI) manager at a large East Coast health maintenance organization (HMO) said that, at a minimum, Tyco and U.S. Surgical would be wise to align their EDI systems.

"Hospitals and HMOs increasingly purchase medical supplies electronically, and they require standard product codes and bar codes on these items," said the manager, who requested anonymity. □

AT A GLANCE

Tyco International
Hamilton, Bermuda

Business: Holding company with 40 operations in more than 75 companies. Units include fire and security protection services, electronic components and auto auction.

1997 revenue: $6.5B

Employees: 75,400

U.S. Surgical
Norwalk, Conn.

Business: World's largest maker of minimally invasive surgical stapling products and leading maker of laparoscopic surgical instruments.

1997 revenue: $1.1B

Employees: 5,776

ELECTRONIC COMMERCE

GEIS, WorldCom team to drive sales

By Bob Wallace and Matt Hamblen

HOPING TO LURE more corporate users toward business-to-business electronic commerce, General Electric Information Services and WorldCom, Inc. last week agreed to combine their networks over the next five years.

By integrating networks, GEIS can offer current and prospective users greater geographic reach, more local access points and greater network bandwidth. GEIS will further develop its electronic data interchange (EDI) services and messaging gateways, and it will help users build electronic catalogs, more extranets and electronic marketplaces. Those efforts target the company's 90,000 trading partners and prospective customers.

Beginning July 1, GEIS will move its network traffic to WorldCom. WorldCom will assume operating control of that traffic — business transactions such as bank transfers, retail sales and purchase orders — and share in its worldwide management. Financial terms of the deal weren't disclosed.

"It looks as if [GEIS] is handing over much of its network work to WorldCom so it can focus on its core competency of working on electronic-commerce application tools," said Don Gordon, senior vice president of information technology at the National Retail Federation. The Washington-based group boasts thousands of U.S. retailers, many of which use EDI to transact business with partners and suppliers.

"Supply chains are global, so the greater the international reach of the network, the more suppliers can become involved in electronic commerce," Gordon said.

> The agreement will let GEIS boost its number of dial-up access points from 750 to 1,408 worldwide

For its part, WorldCom will get hundreds of millions of electronic-commerce transactions for its 50-country data network that serves North America, Europe, Asia and Australia. Kip Martin, an analyst at Meta Group, Inc. in Stamford, Conn., said businesses ultimately will want to buy electronic-commerce-related services from a single source. "If it's going to work and be cost-effective, one vendor would be ideal," he said.

POSITIVE REACTION

Other users applauded GEIS's efforts to drive its electronic-commerce efforts.

"I think off-loading the network piece will be very good for them and will lead to more focus on [the other components] of electronic commerce," said Manny Meister, a supervising buyer at San Francisco-based Pacific Gas & Electric Co.'s purchasing department.

Susan Eich, a spokeswoman for Dayton Hudson Corp. in Minneapolis, said the retail chain lauded the WorldCom deal. Dayton Hudson requires suppliers to its 1,100 retail stores to use EDI. "It reinforces our desire to be with GE Information Services," Eich said.

She also said a larger network with more points of presence provided by WorldCom will make it easier for Dayton Hudson's thousands of suppliers globally to connect with the company using EDI. The potential for added bandwidth helps the company plan for future needs, including audio and video, she said. □

Visual Studio 6.0 will let users build apps via browser

By Sharon Gaudin

THE UPCOMING VERSION of Microsoft Corp.'s Visual Studio tool suite is being regeared for the world of Windows 98 — where Windows and the World Wide Web collide.

Version 6.0 of Visual Studio, set to be unveiled this week at Microsoft's annual **TECH ED CONFERENCE** Tech Ed conference in New Orleans, will have added support for building applications specifically for Windows 98. The upcoming version of Windows will integrate with Microsoft's Internet Explorer browser, enabling users to navigate their desktop much like they navigate the Web.

"New levels of integration in Windows 98 and our tools are going to be an incredibly important thing," said Michael Rissi, Microsoft's group product manager for Visual Studio. "We want our tools to help people build applications for the enterprise via the browser."

ONE POOL OF CODE

Rissi wouldn't disclose what all of those adaptations to tools such as Visual Basic, Visual C++ and Visual J++ will be. But he did say there will be support for ActiveX Data Objects, a data-access technology that enables users to retrieve information off back-end servers and mainframes from a browser, and extended support for dynamic Hypertext Markup Language, which is Microsoft's preferred language for passing information over the Internet.

"This makes a ton of sense for us," said Kim Orumchian, vice president of engineering at Computer Literacy in Sunnyvale, Calif. "We want to have a pool of code that is Web-based and will run well on Windows and across the Internet. I don't want two pools of separate code, and this should help."

Rissi also said the tools in Visual Studio will support Microsoft's Component Object Model (COM) and not COM+, its new architecture for carrying data between object-oriented applications. "COM+ isn't done yet," he said. "As soon as it's actionable, we will have tools to support it."

Rissi added that Microsoft won't show off Visual C++ and Visual Basic this week but will wait until midsummer to unveil them. Version 6.0 of all the tools and Visual Studio are expected to be released in the third quarter. □

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Paul Mason, Vice President, Infrastructure Software Research, IDC

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Number-crunching made easier

▸ *Packaged apps take hassle out of analysis*

By Craig Stedman

AS DATA WAREHOUSING moves into the corporate mainstream, technology and business managers are finding that many users aren't gung ho about mastering complex do-it-yourself analysis tools.

So software vendors are trotting out packaged applications that combine multidimensional databases with predefined analysis routines — or teaming up with other companies that already have that technology.

For example, analysis server vendor Arbor Software Corp. last week announced a $650 million deal to buy Hyperion Software Corp., a much larger company that develops packaged analysis applications.

Also last week, Hyperion rival Walker Interactive Systems, Inc. released an upgrade of its analytic applications suite.

Horizon 3.0 adds a World Wide Web-based module that lets business analysts measure both financial and operational performance. Prices start at $100,000, said officials at San Francisco-based Walker.

For companies such as Bethlehem Steel Corp., packaged analysis tools are a way to spread decision-support capabilities to a broad group of users without forcing them to learn how to slice and dice detail-level data on their own.

FINDING THE NEEDLE

"Power users demand more and more information, but for others, it's easier to do analysis if they don't have to crunch through lots of numbers," said Michael Ippoliti, director of decision support and analysis at Bethlehem Steel. "That can be like finding a needle in a haystack." Early this year, the Bethlehem, Pa., steelmaker began using a packaged performance measurement application from Comshare, Inc. in Ann Arbor, Mich., to analyze sales and marketing data.

Analysis applications aren't a brand-new phenomenon: International Data Corp. (IDC), in Framingham, Mass., counted nearly $1 billion in revenue last year for all varieties of packaged analysis software. But the technology is getting more attention as data warehousing spreads.

The packaged approach is still heavily focused on cut-and-dried financial analysis, said IDC analyst Henry Morris. Other business functions, such as sales and marketing, "are harder problems to get your arms around with a package," he said. "There are too many differences between customer implementations."

PACKAGING DEPARTMENT

Pros and cons of using packaged analysis applications

Pros

- Predefined analysis routines can simplify data querying.
- There's less need to invest in custom development.
- There's better flexibility for adapting to business changes.

Cons

- Packaged software may not fit all business needs.
- Products are mainly focused on financial analysis.
- Custom applications may have more functionality.

Textron, Inc., a $10.5 billion manufacturing and finance conglomerate, uses Walker's financial consolidation software and Arbor's Essbase multidimensional database. Next month it plans to add the Web-based version of Comshare's performance measurement application to the mix.

The software gives business analysts fast access to financial data, said Larry Costello, director of finance information systems at Textron in Providence, R.I. "If someone has a question, they just pull up an Excel spreadsheet and they're off and running," he said.

Arbor's stock-swap acquisition of Stamford, Conn.-based Hyperion is expected to be completed in late summer, the two vendors said. The combined company will be called Hyperion Solutions Corp. and will be based at Arbor's headquarters in Sunnyvale, Calif. □

Hackers find more ways in

▸ *Security managers admit they're vulnerable*

By Laura DiDio
WELLESLEY, MASS.

DATA SECURITY managers at a conference here last week were dismayed to hear of dozens of new network hacks making the rounds, and some privately acknowledged that they are grossly unprepared.

JOHN STATES

Hacker Ray Kaplan: Users can't stop all security breaches, but they should manage the risk with encryption, authentication and firewall testing

The managers from three dozen Fortune 1,000 businesses — all under the cloak of anonymity — attended the New Hack Tour, sponsored by consultancy Cambridge Technology Partners, Inc.

Peter Shipley, who performs "white-hat hacks" for KPMG Peat Marwick LLP in San Francisco, identified the following as some of the latest attacks:

- Firewalls that run on Windows NT and Unix servers can let crackers break in to the underlying operating system via the TCP/IP protocol.
- HotMail, the free Internet mail service, is almost always unencrypted, making it easy for hackers to get user account names.
- Vulnerabilities in the Internet Protocol let malicious hackers easily install network sniffers on networks they have compromised and, unbeknownst to the user, intercept corporate data traffic.
- New "Smurf" attacks send echo packets from the hacker's system to the victims via the broadcast address of a third, intermediate network with a forged return address. The network is flooded with packets until it slows or crashes, and it is difficult to trace the hacker.

Also, Shipley said old hacker techniques such as "Dumpster diving" and "war-dialing" are increasingly popular.

Dumpster divers pick through corporate garbage to find sensitive data such as passwords. War-dialing is the rapid-fire entry of user account names and passwords until a match is found.

"This just confirms my worst fears," said the manager of information security at a Boston-based firm with 60,000 employees worldwide.

That manager presented a detailed case study of her organization's security setup, which she acknowledged was seriously lacking. The security problems include too many user passwords (an average of 20 per user), outdated antivirus software, insufficient use of encryption and inadequate security staffing and budget.

"Until we get a big hit that impacts our business, I suspect that I'll continue to go through 17 rounds of approval and 30 meetings before I get more money for basic items like penetration testing," she complained. "Meanwhile, I pray a lot."

Another security manager, at a multinational communications carrier, acknowledged that his firm's Internet connectivity "is outstripping any security measures I can install."

Ray Kaplan, a white-hat hacker who works at Secure Computing Corp. in Roseville, Minn., said users can't eliminate all security breaches, but they can manage the risk with such measures as encryption, strong authentication for dial-in access and testing the security of firewalls. □

Closing those open doors

Good news: at least half of the security holes in corporate networks can be closed simply by reconfiguring the server.

Malicious hackers most often take advantage of "unintentional open doors in servers," said Mark Fabro, director of the advanced security assessment division at Secure Computing, Inc. in Toronto. The unit performs "white-hat hacks" at the behest of businesses, to probe for security weaknesses.

At the New Hack Tour conference, Fabro detailed the most common security holes exploited by hackers and some simple remedies.

1. The firewall is configured incorrectly. The most typical mistake is configuring the firewall to allow inbound proxies. That lets people on untrusted external networks access the corporate network.

Fix: Install strong token authentication, host authentication and encryption.

2. Denial-of-service attacks on Windows NT and domain name servers.

Fix: To minimize the chance of getting hacked, install the latest security patches, which are often available at the vendor's Internet site.

3. Poorly configured Windows NT networks. Windows NT Server comes out of the box with no security controls.

Fix: Disable guest accounts and null user accounts that let intruders access the network without a password.

4. Overly friendly log-in procedures for remote users.

Fix: Never use the word "welcome" — and don't provide unrestricted, step-by-step log-in instructions.

5. Poorly configured World Wide Web servers. To increase functionality and convenience, many firms configure Web servers to run various applications such as E-mail, file transfer protocol and domain name server. "But the platform of services gives attackers more opportunity to hack your network via a single server," Fabro said.

Fix: In large environments, give each application its own dedicated server. Also, restrict physical access to the server and configure it so that breaking in to one server won't compromise the whole network.

— Laura DiDio

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High pager backup costs not worth it to users

By Kim Girard

ALTHOUGH SATELLITE FAILURE IS rare, paging customers generally don't pay their providers enough to cover the investment in extensive network backup, analysts say.

That lack of network backup became clear May 19 when a computer failure crippled PanAmSat Corp.'s Galaxy IV satellite. The failure knocked out critical service to up to 90% of the country's 41 million paging customers, including doctors, dispatchers and retailers. Most service has since been restored.

Plano, Texas-based Paging Network Inc., the country's largest paging provider, said its service was fully restored by May 22, after PanAmSat shifted the company over to its Galaxy 3R satellite. Galaxy IV isn't expected to be used again for communications services, according to PanAmSat in Greenwich, Conn.

PageNet spokesman Scott Baradell said the company is reviewing its disaster backup plan with an eye toward providing more reliable service.

Baradell said the company offers guaranteed two-way messaging using land-based lines as backup if satellite service fails. A small percentage of one-way paging traffic already is carried on that network, he said.

Under new plans, users will be able to choose basic services or services on the guaranteed, advanced network, he said. But for most users paying a flat fee of $8 to $10 per month for alphanumeric paging services, a guarantee is shaky at best.

"It doesn't make sense to have backup for someone who spends $9 a month for service."
– Callie Pottorf, IDC/Link

Backup — be it a satellite orbiting alongside another satellite or one that travels in a different orbit — would cost providers tens of millions of dollars, said Bob Rosenberg, president of Insight Research Corp., a Parsippany, N.J.-based telecommunications marketing research company.

"It doesn't make sense to have backup for someone who spends $9 a month for service," said Callie Pottorf, an analyst at IOC/Link in Austin, Texas.

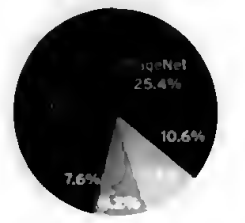
Corporations that rely on satellite service — communications companies and banks, for example — but failed to add insurance to their contracts in case of a satellite outage may be forced to renegotiate contracts at higher rates with a provider.

Providers will "dump you and get you with a new contract if the satellite goes bad," said Louis Bransford, CEO of Esatel Communications, an Alexandria, Va.-based telecommunications provider.

To a user company, the difference in price between a so-called pre-emptable and nonpre-emptable satellite service can be significant, Bransford said. And those who opt for no insurance take a gamble, he said. □

PAGING LEADERS

Market share of paging companies by number of subscribers



Source: International Data Corp., Framingham, Mass.

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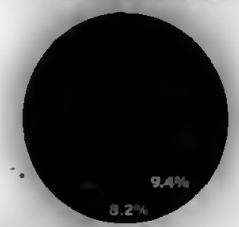

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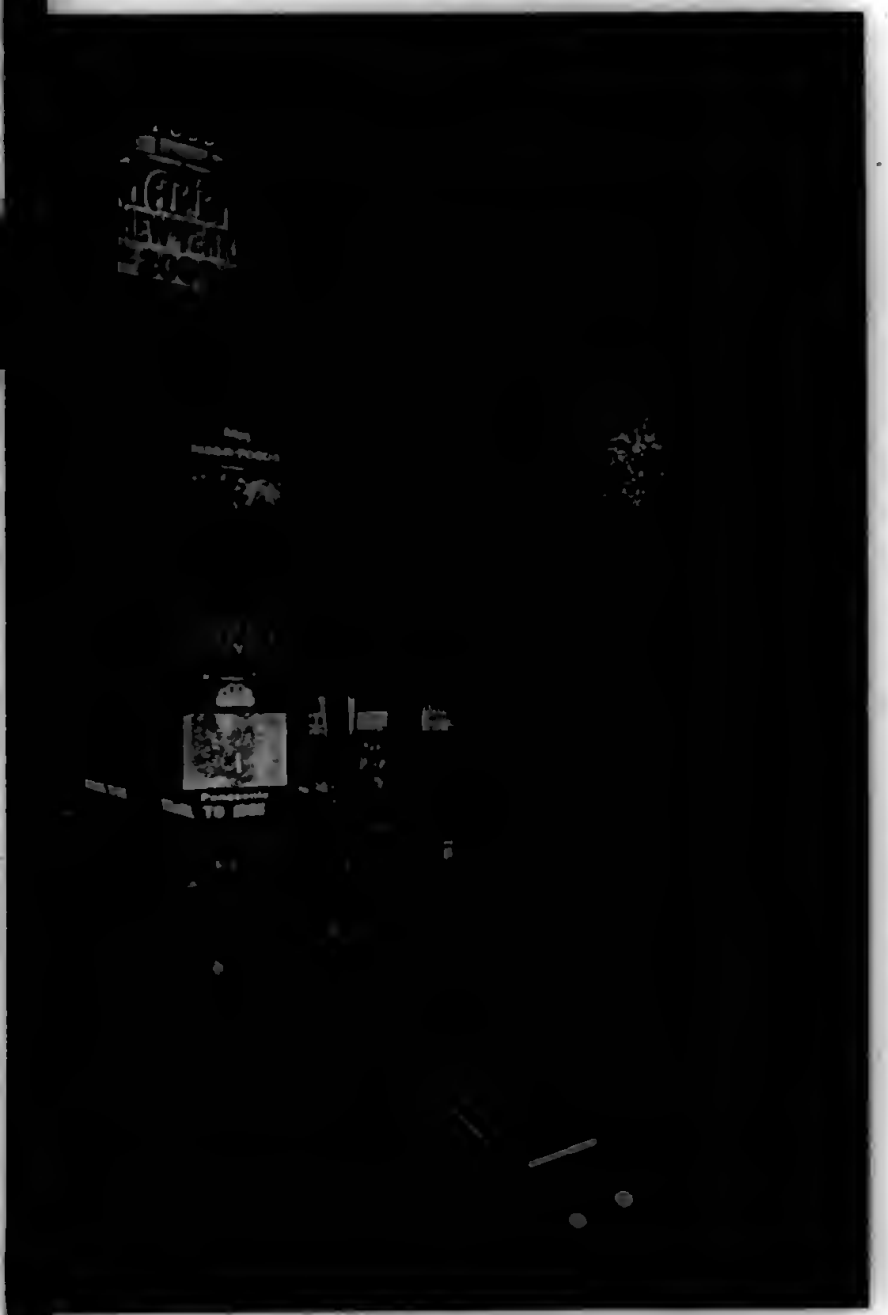
When you're shelling out $4,000,000 to ring in the Year 2000, remember:



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FRANKLY SPEAKING

It's all negotiable

FRANK HAYES

AT NATO HEADQUARTERS in Brussels, everything is negotiable. Naturally, you expect that around the big, fancy tables where diplomats from 16 nations hash out mutual defense plans. That's what diplomats do — they negotiate.

You *don't* necessarily expect it in the cramped offices of an IS staff made up of military officers borrowed from the armies, navies and air forces of those 16 countries.

But somehow, NATO's IS shop has managed to develop an amazingly flexible approach to delivering information technology. And the key is that everything is negotiable.

Understand, these folks face the same technical and people problems as every other IS shop. Up close — away from the impressive headlines about Bosnian peacekeepers and new Warsaw Pact members — NATO looks a lot like any large organization.

That means lots of networks and PCs and databases and back-end systems to build and maintain. It also means the same tight IS budgets, the same constantly changing technology, the same shrinking schedules all IS shops face. But here, everything's up for grabs.

NATO's IS people can react faster to what their users need.

Financial systems, for example. In the old days, NATO *had* to build its own — a multinational military organization has unique needs, right? Today, NATO buys its applications from military services of member nations, then tweaks them as necessary. The systems cost NATO less, they're delivered faster, and they're already tested and debugged — no more Version 1.0 miseries.

A few years back, PCs at NATO headquarters required special shielding to block spies from capturing any electromagnetic emissions that might reveal passwords or other data. Absolutely crucial for security, right? Nope — it turns out NATO's physical security is enough to keep anyone with that kind of fancy surveillance equipment at a distance. Today, the desktop computers are off-the-shelf PCs.

Until recently, a NATO IS project was designed, schedules and budgets were set up, then the project would roll. If money got tight or priorities changed, the project would either survive or be killed outright. That's how it's always done — right? But now, a project can be suspended if technology is changing or users won't be ready or a more important project comes along, then restarted when the time is right. Schedules and budgets can be changed. Priorities can be swapped. Specs can be changed.

It's all negotiable — even the things that seemed sacred just a few years ago because of security or budgeting or business requirements. And because it's all on the table, NATO's IS people can cut costs, build better systems and react faster to what their users need.

Think you live on the other side of the world from these guys? Chances are, you've got your own collection of untouchable requirements. Some of them are political, some are technical, and some are things that just make you more comfortable.

Maybe you keep users at arm's length because otherwise they'll change their requirements. Maybe you never put a project on hold because that's certain death in your shop. Maybe you always use the same tools and techniques because, well, that's the way it's always been done.

Those sacred cows are costing you — in flexibility, in effectiveness, in efficiency. Biting the bullet and putting those requirements on the table may not be easy. You may have to sell the changes — even the idea of *considering* changes — both to senior management and IS staff. But the payoff is information technology delivered better, faster and cheaper. And that's something that shouldn't be negotiable. □

Hayes is Computerworld*'s staff columnist. His Internet address is frank_hayes@cw.com.*

SHORTS

MCI sells off network backbone

Internet customers of MCI Communications Corp. won't notice any change in service with the proposed sale of MCI's Internet backbone, the carrier promised last week. MCI officials said the $6a5 million sale of the backbone to Britain's Cable & Wireless PLC was done solely to satisfy regulators in Europe and the U.S. who were worried about the $37 billion merger of MCI in Washington and WorldCom, Inc. in Jackson, Miss. MCI also said it will test this month a new 128G bit/sec. IP routing switch from Lucent Technologies in Murray Hill, N.J.

AOL pays $2.6M to states

America Online, Inc. has reached a $2.6 million settlement with 44 states that investigated a variety of consumer complaints. The complaints alleged that America Online misled users about access charges and charged fees that were billed to users after they canceled their service. The states will use the money to cover investigation expenses and educate consumers. America Online also agreed to warn consumers at least 30 days before changing contracts.

HP files lawsuit against Xerox

Hewlett-Packard Co. in Palo Alto, Calif., last week filed a patent infringement lawsuit against Xerox Corp. in Stamford, Conn. HP is seeking a permanent injunction that would prohibit Xerox from selling certain copier products containing what HP considers to be a protected touch-screen user interface. A Xerox spokesperson wasn't available for comment. This latest action comes on the heels of an ink-jet patent infringement suit filed by Xerox against HP on May 14.

Travel agency buys 2,000 NCs

IBM last week landed a multimillion-dollar contract to replace PCs used by a British travel agency with more than 2,000 Network Station network computers and servers. IBM wouldn't divulge the contract price, but sources close to the company valued the deal with London-based Carlson Worldchoice at about $5 million.

Whirlpool sues CA

Whirlpool Corp., the appliance maker in Benton Harbor, Mich., has confirmed that it has filed a lawsuit against Computer Associates International, Inc. Whirlpool wouldn't disclose what it is charging CA with, where the suit was filed or even which CA products it uses. A Whirlpool spokesman said only that the two companies "are working to resolve our differences as quickly and efficiently as possible."

Compuware plans suite

Compuware Corp. plans to integrate its separate management tools to help IS groups keep better track of service levels to users. The goal — to be spelled out in a strategy announcement this fall — is to make software under the EcoSystems umbrella work together as a suite, officials said. The modular suite would let information systems managers running one of EcoSystems' three tools add another and share alerts, reports and processes.

Hacker's voice mail purged

Ameritech Corp. in Chicago last week said a hacker deposited obscenities and requests for confidential information in 3,000 to 5,000 residential and business voice mailboxes by illegally using the carrier's broadcast message feature. An Ameritech spokeswoman said the messages were retrieved by only a few customers because the company was able to purge it. The broadcast feature was shut down, and the security code access system is being strengthened, she said.

Compaq claims disputed

A British software maker of year 2000 tools has accused Compaq Computer Corp. of making false claims about the compliance of its PCs. Prove It 2000, based in Huntington, England, claims Compaq ads, "which urged customers to ditch existing PCs" in favor of Compaq machines that have passed multiple year 2000 compliancy tests were incorrect. The ad actually states: "Will your computer call it a day on 31st Dec. 1999? Ours won't." The primary point at issue seems to be the real Time Clock, which Compaq, in a statement, said is not important, mainly because few applications rely solely on it. Prove It 2000 disputes that, and the UK Advertising Authority is investigating.

SHORT TAKES The Clinton administration's new plan for governing Internet domain names will be released this week, according to senior presidential adviser Ira Magaziner. ... **International Data Corp.** in Framingham, Mass., last week issued a report predicting 19% growth in the worldwide enterprise applications market. ... **The Federal Trade Commission** within the next two weeks will release the results of its first organized sweep of the Internet to identify problems related to privacy online. ... **Advanced Micro Devices, Inc.** has unveiled 300- and 266-MHz models of the K6-2 processor, optimized for delivering images and graphics. **IBM** and **Fujitsu Ltd.** will use the chips in their forthcoming systems.

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We used WebFOCUS."

"We use WebFOCUS and EDA [illegible] to publish [illegible] schedules from multiple dynamic databases."

Eduardo Fernandez, Managing Director of Information Services, RENFE

[illegible] to [illegible] State-owned railway system, has always been known for outstanding rail service. And now, thanks to the latest Web technology from Information Builders, they're known for outstanding customer service, as well.

Integrating Web Applications with Live Data

[illegible] Information Builders' WebFOCUS [illegible]ine and EDA middleware, [illegible]es up to the minute train [illegible]d on live, dynamic data from [illegible]s. Anyone with a standard [illegible] can determine exactly when any [illegible] system will arrive at or depart from any destination... even if the train encounters unexpected delays. All it takes are a few simple menu picks to launch a query. The new system has virtually eliminated the expense of creating and maintaining over 6,000 pages of static train timetables. And the thousands of hits on their Web site has produced valuable marketing demographics as an added bonus.

RENFE is also developing Web transaction applications with Information Builders' Cactus application development environment. The new applications will allow customers to fill out forms on RENFE's Web site to plan trips, make reservations and purchase tickets.

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Information Builders.
Building Tomorrow's information Systems

Crystal balls focus on Internet . . .

By Sharon Machlis
CAMBRIDGE, MASS.

DESPITE THE LIMITS of today's Internet infrastructure, executives can expect applications such as Internet telephony to become widespread once current technical problems are solved, according to speakers at last week's Second International Harvard Conference on Internet & Society.

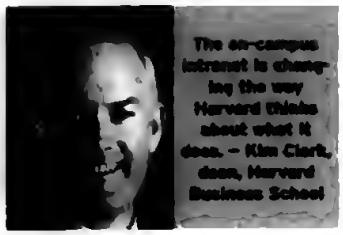
In fact, telephone companies making capital investments with payback times of more than three years "are on really shaky ground," because new technologies such as Internet telephony threaten to supplant conventional networks, said Steve Personik, vice president of information networking at Bellcore in Morristown, N.J.

MIT research shows that within the next few months, U.S. telecommunications networks will be carrying as much data as voice, said Dave Tennenhouse, director of the information technology office at the Defense Advanced Research Projects Agency. By 2008, data will account for about 90% of the overall traffic, making it logical to convert the rest of the traffic to digital bits as well, he said.

New technologies such as Internet telephony threaten to supplant conventional networks.
– Steve Personik, vice president, Bellcore

"That's the reason there will be a sharp switch to Internet telephony," he predicted. That won't necessarily be any time soon, but it will be fast when it does occur, Tennenhouse added.

But participants in the panel agreed there are numerous technical challenges that need to be addressed, including reliability and service features such as itemized billing and Caller ID.



And meanwhile, bandwidth-hogging applications such as full-motion video on demand — which aren't practical over today's public Internet — are already being used over intranets that use Internet protocols, said Kim Clark, dean of the Harvard Business School.

The school invested more than $10 million in an on-campus intranet that gives students their own customized World Wide Web pages with course schedules, assignments and class materials, including video clips that augment business case studies. "Students love it," Clark said. "It is changing the way we think about what we do." The system, which uses about 40 servers from Sun Microsystems, Inc., handles roughly 5,000 video sessions per day.

Although a few faculty members initially grumbled about putting course materials in Web format, the system's popularity encouraged most to use it, Clark said. □

. . . and on E-commerce at Harvard confab

By Sharon Machlis ***Top industry leaders joined with several hundred information technology executives, academics, government regulators and consultants last week at Harvard University to ponder the Internet's present and future impact.***

Not surprisingly, many industry luminaries were bullish on electronic commerce. They cited benefits such as greater reach, new customers, lower transaction costs and relatively small barriers to entry — the latter despite the fact that reports from the trenches show that the marketing and advertising costs to launch a successful World Wide Web site are soaring, and tying Web front ends to back-office systems can be more challenging than expected.

Following are some of the viewpoints aired at the Second International Harvard Conference on Internet & Society:

Louis V. Gerstner
Chairman and CEO, IBM

"[The Internet] is going to bring the IT industry to the office of the CEO in ways it hasn't been in the last 20 years. . . . The revolution is not about the technology. The revolution is about the changes in institutional processes that must take place to seize the advantages of the network. . . .

"What does your brand name mean in the electronic world? [We will see] the arrival of large electronic aggregators, [the] equivalent of the early 20th-century arrival of department stores. . . . Is the aggregator's brand on that screen more important than your brand? Can you be disintermediated? Who owns the transaction data? Does the customer value the convenience [of electronic shopping] more than your brand? These are very important issues for businesses."

Larry Ellison
Chairman and CEO, Oracle Corp.

"The Internet will deliver efficient markets for everything, and this will change the world forever. . . . Can you be a market maker? Because if you can, there's a lot of money to be made.

"We are seeing our computers slowly mutate into Internet appliances. Someday the only [software] you will use on your desktop will be a browser."

Scott McNealy
Chairman, CEO and president, Sun Microsystems, Inc.

"The concept is to make computing invisible. . . . [We'll see] a move to 'Web tone,' where Web tone is as easy to operate as the dial tone. . . .

"The last place you will have a Java-only computing environment is on the desktop. . . . You're going to see Java in [telephones, televisions and automobiles] a lot sooner — appliances you are comfortable and familiar with and know how to work."

Bernard "Bud" Mathaisel
Executive director and chief information officer, Ford Motor Co.

"The closest thing to a silver bullet I've seen in my career is the Internet. . . . However, the Internet is not ready for prime time in the retail world just yet. No one is earning sustained net incomes [in consumer Web retailing]. . . .

"Business-to-business is where we are reaping huge rewards. Eventually, the benefits of doing the business-to-business development will produce real benefits in the retail world. We will get there."

T. J. Scammon
Business analyst, The Walt Disney Co.

"I think it allows us to get to more consumers than we have ever been able to get to. [In the future, the Web could let us] feed you the information you would be looking for, so when you come to our parks, you don't get overloaded. We could cater to what you're looking for, [and then] develop a real relationship."

Steve Ballmer
Executive vice president, Microsoft Corp.

"I think it's still a while before we have 100% acceptance [of a 'Web lifestyle']. . . . . We're really just in the infancy of this explosion."

RELAX. SIMPLIFY. ENJOY.

Millennium coders

CONTINUED FROM PAGE1

Giga Information Group in Westport Conn

It is possible that salaries for year 2000 experts will decline when the crisis is over acknowledged Marvin Thornton senior vice president and year 2000 project manager at Southtrust Bank N A in Birmingham Ala.

"If you're making a salary that is far above everyone else you may drop back a bit" he said "Getting your incentive pay in bonuses or stock options is probably a better bet"

Whom will be affected? Legacy systems people: Cobol, DB2, old things such as IMS, VAX. But Java, C++, anything Internet, E-commerce and any kind of communications skills will continue to be in demand.

John Davis president of New York-based information systems recruiter John J Davis & Associates agreed that that is a sticky issue for chief information officers, but he said he doesn't see how any organization can roll back salaries particularly when companies already are hurting from an industrywide labor shortage "I think people would walk" Davis said

DIE IS CAST

It is a vexing problem for many IS chiefs who were late to the game and reacted to project pressures and threats of defection by paying programmers above-market rates to retain their services

Here is the nut of the problem Year 2000 programmers and analysts on a national average are being paid 20% to 25% more than their non-year-2000 peers, said Kerriann Vogel, an analyst at Meta Group Inc in Reston Va

That translates into average salaries of $56,000 to $72,000 for year 2000 programmers though Fortune 250 companies with big projects and lean staffs are paying more than $100,000 for sorely needed code fixers, Vogel said Most year 2000 programmers are making the same salaries as hot-skilled Oracle and Java developers, she said.

And if they cut project members' salaries after 2000, CIOs risk losing seasoned professionals needed for future projects.

"It's likely that quite a number of [year 2000 staffers] will jump ship for better offers" because their companies will no longer pay their inflated salaries, warned Dave Anderson year 2000 project manager at Basin Electric Power Cooperative in Bismarck N.D.

DON'T DIS YOUTH

On the other hand, if they don't more evenly deploy their salary budgets, CIOs risk alienating and losing younger developers with red-hot programming skills if their financial upward mobility is stunted by high-paid veteran staffers

The good news for year 2000 staffers, be they project managers or programmers, is that the mother of all projects "is a great opportunity for [IS professionals] to show their worth and learn the business," Davis said.

That could hold true even for aging Cobol professionals. "People who have been called in for Cobol skills may have proved their worth, and may be trained in other languages," Greif said. □

Senior editor Kathleen Melymuka contributed to this report.

Year 2000 workers hopeful about job futures

Although CIOs and recruiters foresee a salary shakeout for year 2000 experts after the millennium bug is squashed, the experts themselves are bullish on the future.

"By the time we're done with year 2000, there'll be a pent-up demand for IS professionals in all areas," predicted Dave Kelble, an information technology manager at Wawa, Inc., a Wawa, Pa.-based grocery store chain. Kelble spends about 70% of his time on the company's year 2000 project.

Several year 2000 project managers said the experience and exposure they are gaining within their companies are invaluable.

Breakers' Chuck Forester

For example, year 2000 work often puts information systems professionals in direct contact with line-of-business managers and top executives, said Marvin Thornton, senior vice president and year 2000 project manager at Southtrust Bank N.A. in Birmingham, Ala. That kind of exposure virtually ensures that a good project manager "can pretty much go anywhere in the organization," he said.

In addition, the growing need for experienced IS project managers will be a boon for those who have proved themselves on the one project whose deadline can't slip. "In our industry, a large percentage of projects don't come in on time or on budget," Thornton said. Successful year 2000 project managers will have proved that they are "adept at setting a date and keeping it," he said.

WHO REALLY KNOWS?

Still, many year 2000 staffers readily acknowledge that they really don't know where they will land once their company's millennium project is complete.

"Nobody has really discussed what's next, but I'm looking for another big project or a group of projects," Kelble said. He said he expects to have little trouble finding such an opportunity at Wawa because several projects, including a big enterprise resource planning project, have been put on hold while year 2000 work takes center stage.

"In most companies, a lot of projects are being put aside," agreed Chuck Forester, a vice president at Breakers Consulting, Inc. in Wesley Chapel, Fla. Breakers has been helping clients — mostly banks — deal with the year 2000 bug. After that work is complete, Forester said he expects clients to have renewed interest in more cutting-edge applications, such as adding services to automated teller machines.

As early as the second quarter of 2000, "we'll begin shifting our focus to PC-based applications," Forester said. "That will be the next big market for us. Where we used to use Cobol, we'll start looking at Java. The market will still be great."

— Barb Cole-Gomolski

Business savvy key to post-2000 jobs

By Thomas Hoffman

YEAR2000

TO BE SURE, some year 2000 team members can be retrained and redeployed to work on enterprise resource planning and other big projects that have been deferred because of the millennium problem

Programmers who have a good understanding of the business and an aptitude for learning new technical skills are the most likely candidates

That is true at Case Corp., a Racine, Wis.-based maker of construction and agricultural equipment.

But grizzled Cobol programmers who lack the aptitude or desire to be retrained in sexy programming languages such as Visual Basic "may find themselves out of work," said Dave Anderson, year 2000 project manager at Basin Electric Power Cooperative Bismarck, N.D.

It is less of a problem for organizations such as Merrill Lynch & Co., which reacted early to the millennium bug and kept year 2000 staff salaries in check while they offered five-figure retention bonuses for its 100 internal project members

"That's why Merrill chose to go with stay bonuses," so that year 2000 team members "will have realistic salary lines when the year 2000 is over," said Susan Luechinger, director of year 2000 implementation at the New York-based brokerage.

TRAINING INCENTIVE

The brokerage also has promised to retrain any of its Cobol programmers in distributed systems in the next century as another retention incentive, Luechinger said.

Canadian Imperial Bank of Commerce also planned ahead and has been rotating its developers through different phases of code remediation. Once they have logged 300 hours on the project, Cobol programmers are given a watch and redeployed into new development projects.

"We really don't have a vulnerability from a year 2000 standpoint, since we distributed [the work] across the organization," said John Burns, vice president of projects at the Toronto-based bank. □

Sun planning to split Java standards from products

By Sharon Gaudin

IT SEEMS RESISTANCE was futile.

Pressured by a vocal Java community, Sun Microsystems, Inc. is getting ready to hack off another section of its JavaSoft division. Sun's last month scrapped its five largely autonomous operating companies in favor of seven business divisions but resisted breaking its Java standardization efforts into a separate unit, as many Java supporters were urging it to do.

Java backers and critics took issue with the fact that JavaSoft would be leading the charge for standardization, which would give it early access to specifications, testing centers and protocols while it made money by selling Java-based products. They loudly called for a separation between church and state

But Sun shied away from making that split during the grand reorganization and reportedly has taken it on the chin for doing so Now, it seems, Sun is prepared to make its move.

Evan Quinn, an analyst at International Data Corp. in Framingham, Mass., said he has been unofficially briefed about the split, which will separate Sun's efforts to create a Java standard from its efforts to make money by selling Java-based products

"They're putting up a firewall so they can't work together," Quinn said. "After they made their last realignment, they got a lot of complaints that standards and products were still together."

A spokeswoman for Sun acknowledged that there will be another split but said she didn't know what it would entail. She said further details are expected later this month. □

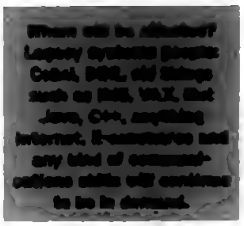
Millennium coders

CONTINUED FROM PAGE1

Giga Information Group in Westport, Conn.

It is possible that salaries for year 2000 experts will decline when the crisis is over, acknowledged Marvin Thornton, senior vice president and year 2000 project manager at Southtrust Bank, N.A. in Birmingham, Ala.

"If you're making a salary that is far above everyone else, you may drop back a bit," he said. "Getting your incentive pay in bonuses or stock options is probably a better bet."



John Davis, president of New York-based information systems recruiter John J. Davis & Associates, agreed that that is a sticky issue for chief information officers, but he said he doesn't see how any organization can roll back salaries, particularly when companies already are hurting from an industrywide labor shortage. "I think people would walk," Davis said.

DIE IS CAST

It is a vexing problem for many IS chiefs who were late to the game and reacted to project pressures and threats of defection by paying programmers above-market rates to retain their services.

Here is the nut of the problem: Year 2000 programmers and analysts on a national average are being paid 20% to 25% more than their non-year-2000 peers, said Kerriann Vogel, an analyst at Meta Group, Inc. in Reston, Va.

That translates into average salaries of $56,000 to $72,000 for year 2000 programmers, though Fortune 250 companies with big projects and lean staffs are paying more than $100,000 for sorely needed code fixers, Vogel said. Most year 2000 programmers are making the same salaries as hot-skilled Oracle and Java developers, she said.

And if they cut project members' salaries after 2000, CIOs risk losing seasoned professionals needed for future projects.

"It's likely that quite a number of [year 2000 staffers] will jump ship for better offers" because their companies will no longer pay their inflated salaries, warned Dave Anderson, year 2000 project manager at Basin Electric Power Cooperative in Bismarck, N.D.

DON'T DIS YOUTH

On the other hand, if they don't more evenly deploy their salary budgets, CIOs risk alienating and losing younger developers with red-hot programming skills if their financial upward mobility is stunted by high-paid veteran staffers.

The good news for year 2000 staffers, be they project managers or programmers, is that the mother of all projects "is a great opportunity for-[IS professionals] to show their worth and learn the business," Davis said.

That could hold true even for aging Cobol professionals. "People who have been called in for Cobol skills may have proved their worth, and may be trained in other languages," Greif said. □

Senior editor Kathleen Melymuka contributed to this report.

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ON A RELATED TOPIC

HOW'S YOUR SUPPLY CHAIN?

Network nightmares: Fighting the inevitable

CONTINUED FROM PAGE 1

The respondents said the most common causes of the network snafus were human or administrative error, electrical power outages, Internet service outages, failures within a local telephone company's network and router errors.

Many businesses are still counting their losses from the collapse of AT&T's frame-relay network in April. A routine switch upgrade ran amok, swamping 145 other switches with false messages and silencing customers who lacked backup connections.

"We couldn't do anything for two days," said Mark Garcia, a network administrator at publisher Steck-Vaughn Co. in Austin, Texas. "We couldn't send or receive electronic mail; we couldn't connect to our parent company's mainframe in Orlando [Fla.]; we couldn't use the Internet. It was a quiet couple of days . . . in an eerie sort of way. It made me realize how dependent we are on someone else's service."

THE DREADED LAST MILE

Despite the AT&T outage, the major carriers' long-distance networks are considered more reliable than the networks run by local telephone companies, users and analysts said.

"The local loop is our nightmare" because of backhoe cuts and poor maintenance by "mom-and-pop telcos," said Scott Meyers, a senior telecommunications manager at Cargill, Inc. in Minneapolis.

Similar problems plagued Minolta Business Systems, Inc., which has 50 field offices linked with its headquarters in Mahwah, N.J. Those local lines last year suffered lost or intermittent links 20% of the time, said Warren Pollock, a telecommunications manager at Minolta.

Users and analysts pin some of the blame on local-exchange carriers for laying off, or not replacing, technical staff members. The result: Central offices may not be manned around the clock, and troubleshooting expertise may be lacking.

Minolta worked with local providers to split T1 lines between two separate switching centers before connecting to the long-haul carrier. Those steps boosted network availability to 99.95%, Pollock said.

At Cargill, a typical weekly operation report lists six outages, Meyers said, four of which relate to the local-exchange carrier and last an average of 60 minutes. Major offices have redundant local connections, like Minolta's sites do. But most of the agricultural and food supplier's 1,000 sales offices are in rural areas that don't have backup options, he said.

LOST IN THE CLOUDS

Network communications remain "most vulnerable from the office to the backbone," said John McConnell, president of McConnell Consulting, Inc. in Boulder, Colo. "Once in the carrier cloud, they have redundancy out the wazoo."

These days, the long-distance networks can usually survive disasters because of duplicate paths and broad implementation of Synchronous Optical Network rings that immediately reverse traffic at the point of a cut. The network also uses intelligent call setup software that automatically seeks the best possible route.

But AT&T's embarrassing outage is a reminder that even the major carriers can flub.

"We've had problems with Sprint [Corp.] just occasionally disconnecting us, for reasons that even they don't understand," said Gary Jackson, MIS administrator at Standard Iron, Inc., a steel fabricator in Minneapolis.

And the carriers' vaunted automatic-recovery capabilities may not be enough.

"The carrier's restoration system kicks in quickly, but we may not get full capacity," said Ed Koch, telecommunications vice president at First Data Resources, the information systems arm of First Data Corp. in Hackensack, N.J.

About once each month, cable cuts on carrier trunk lines knock out 20 or more of the 3,000 links to bank networks for two hours or longer, Koch said. Those outages affect smaller customers who chose not to pay for backup links, while "heavy redundancy" protects the connections with large banks.

Even the obvious hedge of splitting traffic between two carriers isn't a sure bet.

"That doesn't always ensure protection because separate providers can still share a single conduit," said Trae Chancellor, director of technical services at Pegasus Systems, Inc. The Dallas-based company runs a transaction processing system that handled 17.5 million hotel reservations last year.

Ensuring critical traffic has more than one route to its destination is getting more difficult, said Jim Herman, an analyst at Northeast Consulting Resources, Inc. in Boston. "Diverse routing is getting undone now because everyone is reselling and buying bandwidth so much that you can't be sure who carries your traffic anymore," he said.

Acts of God will always strike, such as the storm last July that knocked out power — and all network links — for two days at Standard Iron. And then there is simple human error. At Steck-Vaughn, for example, "someone accidentally knocked out the power cord to one of our routers, so our network was unable to communicate with anyone else," Garcia recalled.

Those physical disruptions are recognized immediately. A more insidious threat is the sheer intricacy of networks and their software.

"What really scares me are [software] bugs — the stuff that's not reproducible or fixable immediately," said Alan Jarashow, project manager in the network planning and design group at Nabisco, Inc. in Parsippany, N.J.

"For example, if my routers have a bug in their code and the problem crops up one day and doesn't show up again until a reboot three weeks later, that's more of a nightmare for me than a problem I can identify," Jarashow said.

As a general rule, network outages are less frequent these days, but their duration is increasing because of network complexity, according to Koch.

Huge amounts of time and expertise are required to debug call setup and switching software in carrier networks and to sort out routing tables in the corporate wide-area network.

Koch said he worries that some seemingly innocuous change to router configuration software — anywhere in First Data's network or a customer's network — will "wreak havoc with all the routing tables" and cease communication for days.

THE BANDWIDTH HOGS

The No. 1 network threat identified in the *Computerworld* survey comes from inside the business: bandwidth-hogging applications such as Dancing Baby screen savers, holiday greetings, E-mail jokes and multimedia file transfers.

Network managers said they have to play bad cop and restrict traffic that isn't mission-critical.

Derek Christopher, network administrator at Southern Imperial, Inc., a manufacturer in Rockford, Ill., said his company has already banned the transmission of screen savers over the network and is considering other constraints on end users' bandwidth consumption.

A classic bandwidth hog is the information "push" technology from PointCast, Inc. "PointCast became rampant throughout my network — basically taking out T1 lines in bandwidth usage," Jarashow said. "We stopped that. . . . And so far, only one out of 760 [previous PointCast subscribers] has come back to tell me there is a business requirement for it."

But perhaps network managers face their biggest nightmare every day at work, dealing with unreal expectations.

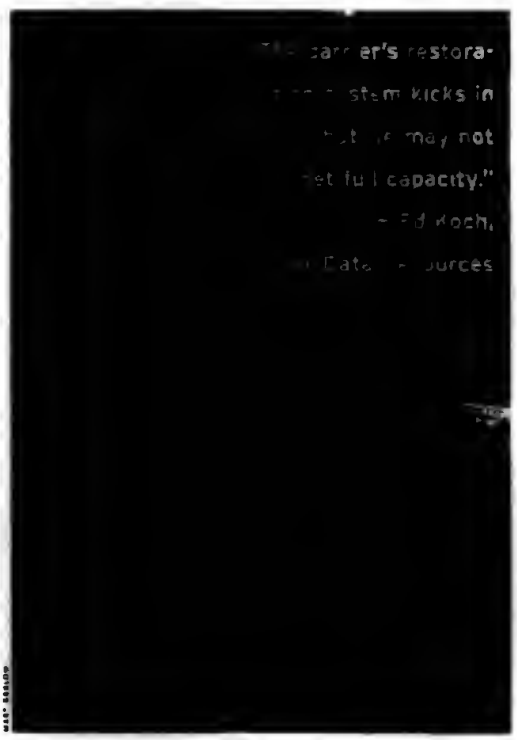
The vast majority (83%) of respondents said business demands for network reliability have increased. Yet they overwhelmingly agreed with the statement that "business units would like 100% network uptime but aren't willing to pay for it." □

Top 5 steps taken to improve network reliability (in the past 12 months)

Added or upgraded uninterruptible power supplies	88%
Increased network monitoring capability	83%
Added redundant hardware	67%
Negotiated service guarantees with carriers	40%
Split traffic between two local-exchange carriers	17%

Base: 103 network managers; multiple responses allowed

Source: Computerworld Information Management Group, Framingham, Mass.



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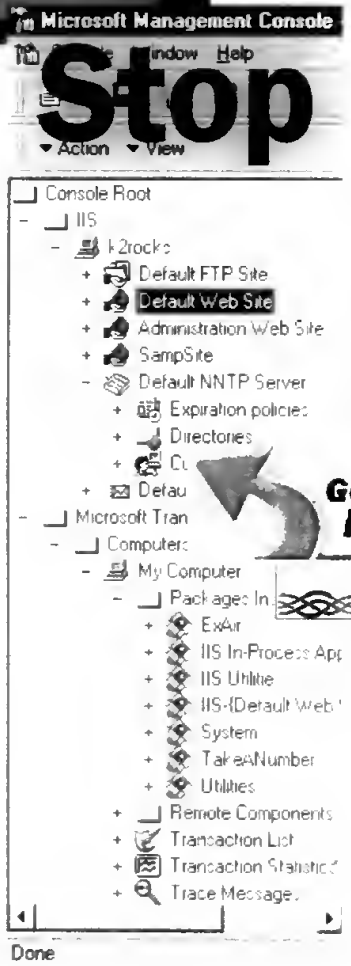

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Cisco devices speed Internet connection

▸ *Rise in Digital Subscriber Line use foreseen*

By Bob Wallace and Matt Hamblen

NETWORKING KINGPIN Cisco Systems, Inc. last week announced a series of devices that will let business and residential users tap in to fast-emerging Digital Subscriber Line (DSL) carrier services.

DSL provides very high-speed access to the Internet using existing twisted-pair wire. And carriers don't have to install equipment between switches and user sites.

The new Cisco products offer data transfer rates that can be scaled from 32K to 8.1M bit/sec. The equipment will let branch offices, midsize businesses, telecommuters and residential users tap in to the increasingly deployed services.

The number of DSLs deployed will soar from 50,000 by year's end to 800,000 by 2000, according to Gartner Group, Inc., a Stamford, Conn.-based consulting and research firm.

Cisco's DSL offering is "the broadest product rollout we've seen to date for users." – Craig Driscoll Yankee Group

Craig Driscoll, a research analyst at Boston-based The Yankee Group, said Cisco's DSL offering is "the broadest product rollout we've seen to date for users.

"And with a networking vendor of Cisco's size and presence doing this, we believe it will go a long way toward quickly legitimizing the DSL market," Driscoll said.

Cisco also announced equipment that will let carriers provide DSL services, the other half of the equation.

DSL DEVICES

For the branch office, small office and consumer markets, Cisco offers the Cisco 626, a stand-alone Asymmetric Digital Subscriber Line (ADSL) modem.

The vendor also will offer the Cisco 676 SOHO/Telecommuter Router. The two products will ship in October; pricing hasn't been announced. The Cisco 1401 Small Office Router will ship in September. It will cost $1,395.

Pacific Bell in San Francisco, a subsidiary of SBC Communications, Inc., joined the fray last week, saying it will offer ADSL service to 200 California cities by summer's end. Pacific Bell will equip 87 central offices to handle 4.4 million households and 650,000 business customers in cities that include San Francisco, Los Angeles and San Diego.

For businesses interested in fast Internet connections for telecommuters and remote offices, Pac Bell is offering Office Pack DSL with 1.5M bit/sec. downstream and 384K bit/sec. upstream transfer rates. The service costs $189 per month. There is a one-time installation charge of $125 per connection.

Pac Bell joins several other carriers that recently have announced deployment of ADSL, including Ameritech Corp., BellSouth Corp., GTE Corp. and US West Communications, Inc. □

Users pin hopes on Oracle thin-client apps

▸ *Browser-based approach aims for more speed*

By Craig Stedman
SAN DIEGO

PRODUCTION USE of Oracle Corp.'s browser-based applications currently is limited to about 10 companies. But prospective users are counting on the software to help them avoid widespread rollouts of Oracle's slow fat-client product.

Several attendees at last month's Oracle Applications Users Group conference here said they hope the thin-client applications — which shipped in January — will be well-proven by the time their Oracle installations are expanded corporatewide.

Getting the skinny on the thin-client software was Steve Fawcett's top priority at the conference. Fawcett is corporate applications manager at HydroChem Industrial Services, Inc., a $160 million cleaning company in Houston that is finalizing plans to buy Oracle's applications.

HydroChem wants to get away from the character-mode software it now uses, but upgrading all of its PCs to run Windows-based applications isn't high on the company's wish list.

"That would be a waste of money," Fawcett said. "We have a lot of people who basically just do data entry, and they don't need the fastest machine on the block."

Oracle's thin-client approach, which is based on its Network Computing Architecture (NCA), moves processing off of PCs and onto application servers. Users access the applications through Java-based client code that runs inside World Wide Web browsers.

For some users, the NCA path is expected to be a way around the performance problems that have plagued Oracle's Windows-based client software in installations that cut across multiple offices.

NO FAT CLIENTS

For example, Mapco Coal, Inc. uses Oracle's fat-client software to run payroll and human resources at its Tulsa, Okla., headquarters. But the company plans to switch to a three-tier NCA installation when the applications are extended to its coal mines early next year, said Geoff Goolsbay, applications manager at Mapco.

Response times on the company's wide-area network "would be atrocious" with the Windows software, he said.

Other users, who couldn't wait for the NCA-based applications, have built their own thin-client setups by putting Oracle's Windows software on servers equipped with Citrix Systems, Inc.'s WinFrame PC emulator [CW, May 25].

Mapco also considered a Citrix-based implementation, "but that would require a lot of [server] hardware," Goolsbay said. The NCA-based approach isn't expected to be nearly as server-heavy, he added.

STRICT DIET

Oracle, in Redwood Shores, Calif., is selling the new Release 11 of its application suite only in thin-client mode. Users still can buy the earlier Windows version, "but we're strongly encouraging people to go to NCA" to get better performance, said Ron Wohl, senior vice president of applications development at Oracle.

Oracle is the first vendor with browser-based applications, but SAP AG and other rivals already have three-tier setups that off-load some processing from their Windows client software, said Byron Miller, an analyst at Giga Information Group in Cambridge, Mass.

"Other vendors made [client/server] work. These guys couldn't," he said. □

Novell sues reseller

▸ *Accused company denies selling stolen goods*

By Elinor Mills

NOVELL, INC. last week said it has sued a Utah-based company for allegedly selling stolen IntranetWare for Small Business CD-ROMs.

Novell contends that Computer Recyclers in Orem, Utah, obtained CD-ROMs that were slated to be destroyed and recycled in Ireland. The company then falsified forms to qualify for lower upgrade pricing and received authorized upgrades, and used a heat gun to remove the labels, Novell officials said.

Novell's lawsuit against Computer Recyclers and four individuals charges them with infringing on Novell's copyrights, trademarks and trade names. The suit also charges them with unfair competition and false advertising under the Trademark Act of 1946.

Tim Bird, president of Computer Recyclers, refuted Novell's claims. Bird said Novell merely was trying to get rid of the "gray market," where unauthorized dealers sell goods, often at discounted prices.

"Nobody's going to be able to get rid of the secondary market because there always will be people who go out of business, and we buy their stock . . . and I feel that's legal," Bird said. "It's legal because we're not duplicating copies; we're selling surplus." Bird said he didn't know the origin of the software he purchased and acknowledged that it could have been stolen. But he said he called Novell last year after buying the software because the "price was too low," and Novell verified that the serial numbers were valid.

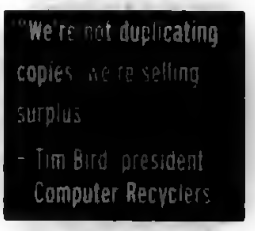
Nathan Gage, Novell's anti-piracy investigator, said the serial number confirms only that a product was manufactured by Novell and assigned that number, but it doesn't confirm the product's legitimacy.

"If the product has been, for example, stolen off the dock, as it happened in this case, we don't know the product has been stolen until it shows up at the end-user site," Gage said.

The end user in Europe was suspicious because the software wasn't in a retail box, Gage said. The software, which sells for about $900, had been purchased for about $60, he said.

DENIALS, ACCUSATIONS

Bird denied the allegations of trademark and copyright infringement, arguing that although Novell might not consider his firm an authorized reseller "on paper," his 10-year-old company has been operating as such with Novell's nod.



Gage said that despite Bird's claims, Novell had received complaints from Computer Recycler customers and former employees that the company was infringing on Novell copyrights and trademarks.

Bird said Computer Recyclers didn't tamper with labels or fudge paperwork for upgrades. Most Novell upgrades are handled between Novell and the end user, he said, adding that he has never run into problems with Novell in the past. □

Mills writes for the IDG News Service in San Francisco.

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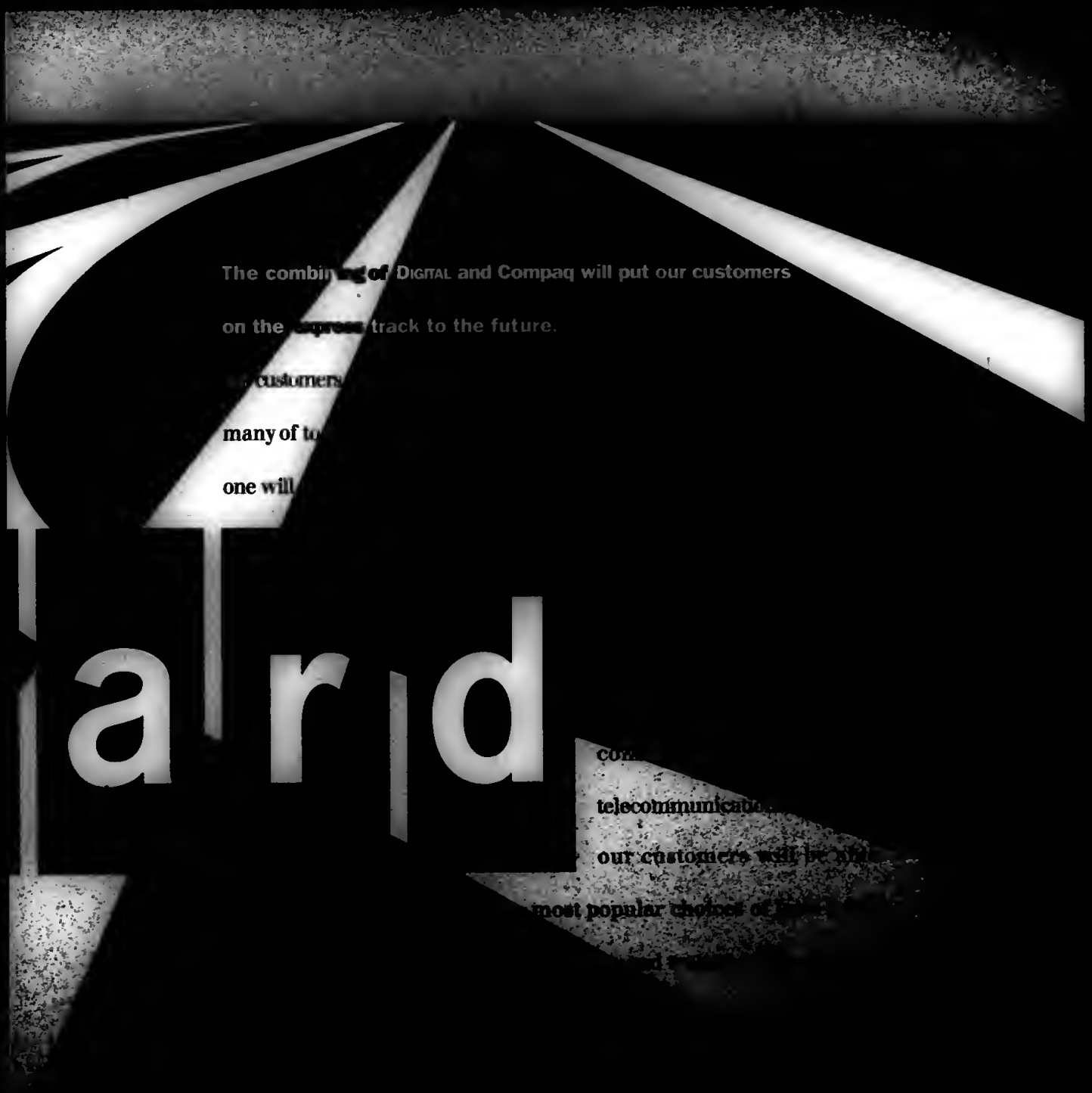
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Web news site drops subscription fees

By Sharon Machlis

BUCKING THE RECENT TREND toward instituting fees for Internet content, the *San Jose Mercury News*, a subscription pioneer on the Web, said it will stop charging for access to its site.

"Everybody's zigging, and we're zagging," said Bob Ryan, director of *Mercury Center*, the paper's online edition *(www.sjmercury.com)*.

Analysts said the move showed that World Wide Web sites with specialized information may find success charging fees, but general-interest news sites face a tougher road. "The Internet is flooded with free content," said Patrick Keane, an analyst at Jupiter Communications, Inc. in New York. "This is an admission they haven't been very successful in getting people to pay for the service."

The *Mercury News* was charging $2.95 per month for print subscribers and $4.95 per month for others, and it had an estimated 10,000 paying users. It began charging a subscription fee in April 1995, four months after launching its Web site. Few in the industry thought there was a chance of getting enough consumers to pay for Internet content.

Web executives considering user fees — or even free registration, which also cuts down on surfer entry — have to weigh the trade-off of lower advertiser appeal if traffic slows.

Slate (www.slate.com), an online magazine sponsored by Microsoft Corp., saw its readership plummet from about 170,000 to 20,000 after it established a $19.95 annual subscription fee. "They're hosed," said Bill Bass, an analyst at Forrester Research, Inc. in Cambridge, Mass. The $400,000 or so in subscription revenue can't come close to meeting costs that are likely to be several million dollars per year, he said. And few advertisers will want to pay high rates for a site with relatively light traffic.

Web sites that charge for information include:

Business Week
- Free areas, $39.95 per year for premium content

ESPN SportsZone
- Free areas, $39.95 per year or $4.95 per month for premium area

San Jose Mercury News
- Now free, still charges $1 per archived story

Nevertheless, more players are moving into the fee-based content space. *The Wall Street Journal Interactive Edition (www.wsj.com)*, which has about 200,000 paying subscribers, is considered the most successful of the genre. Other subscription sites include ESPN SportsZone and Walt Disney Co.'s Daily Blast.

The *Mercury News* is banking on the opposite approach. It hopes the increase in users to a free site will attract more advertiser money than has been lost in subscription fees. "We have not uncovered the secret to profitability, but I would say we're definitely headed in that direction," Ryan said. "Neither we nor anyone out there has figured out what the perfect [business] model will be." □

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QUICK STUDY

Hot trends & technologies in brief

Digital versatile disc

DEFINITION: Digital versatile disc (DVD) is the successor to the ubiquitous compact disc (CD) optical storage media. A DVD is a silvery platter 120mm in diameter. It can record information on both sides and stores 2.6G to 17G bytes of digital audio, video or data. A CD records information only on one side and has a capacity of 650M bytes. Types of DVDs include DVD-ROM discs, which hold read-only information; DVD-R discs, which can record information only once per disc; and DVD-RAM and DVD+RW discs, which are both rewritable discs. Businesses use DVD for many functions, such as distributing software, transporting files, backing up systems and archiving files.

Benched 'til after the millennium: Benefits of rewritable DVD put on hold

By Nancy Dillon

THERE IS A FORMAT WAR going on in the rewritable digital versatile disc (DVD) arena, and that's making it tough for DVD to blast off in the business market.

Movies, video games and software distribution are among the uses for this technology. But without the ability to erase and rewrite information, DVD is limited to static content publishing.

AT ISSUE

Format discrepancies make it tough for DVD to enter the market

Rewritable DVD, on the other hand, can handle more business-related tasks, including system-level backup, desktop publishing, network-accessible storage and system-to-system data exchange.

BRIGHT FUTURE

Analysts say rewritable DVD holds promise as a high-capacity replacement for removable storage media such as floppy disks, CDs and Zip disks from Iomega Corp. in Roy, Utah.

The main players in the highly contentious rewritable DVD market generally fall into two format camps: DVD-RAM and DVD+RW. DVD-RAM can store 2.6G bytes of data on single-sided discs or 5.2G bytes on double-sided discs.

DVD-RAM drives from Hitachi America Ltd. in Brisbane, Calif., have been shipping since April. Other manufacturers expected to ship DVD-RAM drives this summer include Toshiba America Information Systems, Inc. in Irvine, Calif., and Matsushita Electric Corp. of America in Secaucus, N.J.

DVD+RW products aren't due until late this year. They are expected to hold 3G bytes of data per side. Vendors in that market will include Hewlett-Packard Co. in Palo Alto, Calif.; Philips Electronics NV in the Netherlands; and Sony Electronics, Inc. in San Jose, Calif.

Both DVD-RAM and DVD+RW drives can read audio CDs, CD-ROMs, CD-R (recordable) discs, CD-RW (rewritable) discs and DVD-ROM discs.

But there's a catch: A disc created by a DVD-RAM drive won't work in a DVD+RW drive and vice versa. And many of today's DVD-ROM (non-rewritable) drives aren't guaranteed to read discs mastered in the rewritable formats of DVD-RAM or DVD+RW.

Those incompatibilities mean that if a user adopts one standard and that standard fails, the user's DVD investment is threatened.

"This is just like the VCR war of the 1970s with VHS vs. beta [tape formats]," says Rob Enderle, an analyst at Giga Information Group in Santa Clara, Calif. "But right now we're still waiting for a format to establish itself as the standard — the way VHS did."

Enderle says DVD-RAM may have an advantage because it's first to market. But initial high prices may hold down volume sales, he says. "It's still too early to predict who will win. If you don't need the technology now, you should defer any investment for a few more months," Enderle says.

STEADY COMPETITION

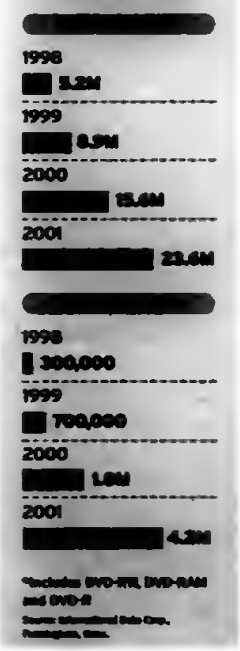
Wolfgang Schlichting, an analyst at International Data Corp. in Framingham, Mass., says another challenge to rewritable DVD is continued growth in the relatively stable rewritable CD market.

CD-RW drives cost approximately $400, and DVD-RAM drives cost about $800. Schlichting says DVD-RAM will be twice as expensive as CD-RW for at least a few more years.

"My take is that it will be more like 2005 before rewritable DVD takes over rewritable CD," he says.□

QUICK STUDY ONLINE For research, vendors, *Computerworld* articles and other links to DVD, go to *www.computerworld.com/more.*

Projected worldwide shipments of recordable CD and recordable DVD drives:



*Includes DVD-RW, DVD-RAM and DVD-R

Source: International Data Corp., Framingham, Mass.

REMOVABLE STORAGE PRODUCTS

	DVD-RAM	CD-RW	ZIP
Drive cost	$750	$400	$150
Cost per disc	$25 for 2.6G-byte disc	$20 for 650M-byte disc	$16 for 100M-byte disc
Cost per megabyte	$0.01 per megabyte	$0.03 per megabyte	$0.16 per megabyte
Other formats it can read	DVD-ROM, DVD-R, CD-RW, CD-R, CD-ROM	DVD-ROM*, CD-R, CD-ROM	Zip disks only

Source: Specifications from market-leading vendors

*Only if it has MultiRead, a specification from the Optical Storage Technology Association

■ *Are there technologies or issues you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stefanie McCann at stefanie_mccann@cw.com*

OPINION

Lead the suits

Did you hear that at the recent economic summit, the leaders of the most powerful countries in the world talked about the year 2000 problem?

Have you seen the front page of any newspaper without a Microsoft story on it? Caught any of those sexy TV ads computer vendors have been running in prime time? Have computers taken over the world?

Actually, no. It's the other way around. Businesspeople have realized they can make money with technology, and so they've taken over the computer world.

Same difference, right? They need your expertise. Geeks rule!

Not really. In any takeover it's the conqueror who decides which projects are funded, which jobs are filled and who gets to plug a Web site in to your transaction system. Technology is improving every area of business, but technologists are mostly doing the grunt work. The suits still rule.

So what do you do? Join the conquest before all the looting and pillaging is over. Leap to the walls, waving your technology banner, crying "Follow me!" Then actually lead. Make allies on the business side. Do some quick-hit Web projects with short-term cash payoffs. Help salespeople sell, open new channels, communicate with customers. Preach the gospel of automation and electronic commerce.

Follow the lead of Tom Collins, chief information officer at Egghead.com, which closed all its stores to become a Web-only business. Collins didn't make that decision, but when the CEO needed alternatives, he was there, helping to keep the business alive when competition from superstores threatened to crush it [CW, May 25].

You can be a business leader, too. Use your technology background the same way your CFO moved up the ranks using expertise in bookkeeping. Make technology make a difference to the bottom line.

Or don't. If all this focus on technology seems like a fad, a misguided fantasy of CEO wannabes, don't worry. Stick to your guns. When it's all over, there will still be a few jobs left for you in some quiet data center. Who wants to be a suit, anyway?

Kevin Fogarty

Kevin Fogarty, *sections editor*
Internet: kevin_fogarty@cw.com

YOU ARE NOW FREE MY FRIENDS— FREE TO FLY WHEREVER YOU WANT. FREE TO FULFILL YOUR INDIVIDUAL DESTINIES!!
BELL SYSTEM
BELL SYSTEM

LETTERS

Don't give 'em any ideas

I AM VERY disappointed that *Computerworld* published the April 6 article "Time to Go?" by Lina Fafard. At a time when IT management is pulling out its collective hair trying to staff and stabilize technical organizations, the last thing managers need is an article encouraging technicians to hit the road. Plus, the article was written by a vice president from an industry search firm. That's hardly objective journalism. If recruiters want to drum up business using your publication, let them buy an ad like everyone else.

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College degree shows effort

IN REGARD TO "So, who needs college?" [CW, March 30]: It's true that a college degree doesn't guarantee performance, but currently it's the only valid benchmark when hiring professionals. Anyone who has a four-year degree from any state college or university — and made reasonable grades — put in tremendous effort and time to reach that goal.

If you take all the Fortune 1,000 executives, only a small percentage don't have degrees, and most have more than one. I'm not saying non-degreed people don't work hard, but those with college degrees went the extra mile toward a common and recognized goal.

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Placing 'agency' not needed

COMPUTERWORLD editor-in-chief Paul Gillin has the right idea about repealing IRS regulation 1706 ["Repeal this law.", CW March 30]. Not only would it free up some consulting resources, it would also actually lower tax rates.

Repealing IRS regulation 1706 would free up resources and lower tax rates.

Reason? Many of us have to pay an "agency" and act like a stupid employee to land a decent contract. These agencies mark up our rates by 40% to 60% and act as a bill collector. That's it! No support beyond a weekly paycheck based on our billed hours.

I am currently working on a very nice contract doing an electronic data interchange implementation for a very large international company. My billing rate is $120 per hour to the company.

I pay my own expenses (which requires an out-of-town weekly commute, lodging, food, etc.) and the agency collects 40% of what the company pays.

Now, I would be happy to do that same arrangement directly with the company — at, say, $100 per hour — and we would both make out better.

I haven't even seen the guy who "placed" me at the client since I started the assignment over six weeks ago.

Down with 1706! Onward, free enterprise.

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State Dept. classification doesn't stymie Congress

COMPUTERWORLD'S article on "Senate probes State Dept. security" [March 30] has an erroneous premise.

It says the State Department's classifying a report on hacking its networks "stymies" Sen. Thompson's ability to hold hearings on the incident.

That is not the case. "Secret" and "For Official Use Only" classifications aren't an obstacle to members of Congress or their staffs. Their security access extends much higher than this.

Also, the senator can hold closed-door hearings when sensitive subjects are at issue.

Security of classified material is serious business. Anything concerning successful breaching of security measures must automatically be highly classified. There is no point in publicizing how to do it. Congress should investigate those security incidents. The State Department probably is dragging its feet, but security cannot prevent Congressional hearings.

John Hicks
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Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Cut me a slice of that year 2000 pie

Michael Cohn

Hooray for year 2000! We're going to be rich! GM is spending a gazillion dollars on it. The U.S. Postal Service is budgeting more for year 2000 fixes than my nine-digit ZIP code. And word is McDonald's is forking over a millennium figure higher than the number of hamburgers served.

The world is spending like a drunken sailor — it's a great time to be in IS. Take the Fortune 500. Let's say each one is dropping a mere $40 million or so to fix this millennium thing. My math is a little rusty, but that adds up to a whole bunch of billions just waiting to be invoiced.

And then there are the states. And the feds. And oodles of other countries that are about to open their checkbooks.

Even better news: They have to spend it fast. Heck, there's only a year or two left, last I checked. So this has got to be a banner year! BMW, here I come!

But here's a funny thing: So far, I'm not any richer. I know Cobol. I know Assembler. And so far, I haven't seen so much as a sawbuck from the year 2000 gravy train. Who's getting all the dough?

Personally, I haven't seen so much as a sawbuck. Who's getting all the dough?

The tool vendors say they're not getting it. The consultants insist business is still slow. And though a few hardware salesmen are sporting new Miatas, they swear they had to put them on a 60-month lease.

Everyone's hitting the oews wire disclosing their year 2000 costs. The numbers are enormous. The numbers are staggering. But still, I'm left scratching my head: How does the average U.S. company flush $40 million on year 2000 if so far all it has spent is about 85 cents?

If you honestly insist on being done by Dec. 31, 1998, how can you shell out all $40 million this year? Blow it all on one contract programmer from Cleveland? Get some really nice lamps for the cubicles? Maybe we need to pull in the Pentagon — they could blow that kind of dough on a half-dozen ashtrays and a toilet seat.

Chief financial officers don't lie. Millennium money is being budgeted all over the place. But customers aren't spending it. Vendors aren't receiving it. And although most companies have had year 2000 project teams working feverishly since the summer of '96, all that some of them have come up with so far is a mission statement, a three-page Gantt chart and stationery with an alarm clock on the letterhead.

Meanwhile, year 2000 vendors are still out there, pounding the pavement. Their deposit slips gather dust. Their salesmen crave commissions. They pray that this year will be the year the moola flows like wine.

CALL TO ARMS

So if there's money out there, I say let's spend it! Let's fix year 2000! Because my house could use a coat of paint. My tires look awfully bald. I'm counting on a trillion or two trickling down to us coders, testers and tape-hangers. If it's got to go somewhere, why not to us instead of to salesmen, lawyers and more lawyers?

To all you aspiring millennium millionaires out there: Keep the faith. My guess is that the windfall awaits. But it may be December 1999 before we finally see that bundle. And it probably won't be spent on remediation, testing or even embedded systems, but rather on bottled water. And flashlights. And toilet paper.

And Jack Daniels. Lots and lots of Jack Daniels. □

Cohn runs a year 2000 consulting firm in Atlanta, and just .00001% of the year 2000 pie would be good enough for him.

The rise of freeware

Michael Schrage

Yes, the best things in life are free. But how about the best software? Well billg@microsoft.com and the Justice Department certainly have radically different interpretations of the antitrust implications of "free" software.

Not to worry, though. This isn't another Microsoft vs. Justice column. On the contrary, this is about the very antithesis of Microsoft and antitrust. It's about innovative communities and innovative companies. It's about marketplaces that don't behave like ordinary markets.

As a Eudora and (sometime) Netscape user, I find the entire freeware/shareware phenomenon fascinating and curiously compelling. The cultures — should I say cults? — of Linux, Apache and the Web command respect even as they inspire commercial skepticism. Are they bizarre little technotribes like the Tasaday and the !Kung that are ultimately destined for assimilation and/or extinction? Or do they truly represent a different way to create and nurture sustainable innovations that can shape and reshape global markets? In other words, are they mere epiphenomena? Or are they really changing the rules?

I think the philosophies, ideologies, technologies, cultures and the economies of freeware/shareware will rewrite the business models of entrepreneurship and the IT investments of global corporations in the next five years.

To be sure, you don't find Fortune 1,000 CIOs championing freeware/shareware as part of the enterprisewide solutions or as vehicles for cost management or superior maintenance. You don't find consultancies such as Andersen or EDS supporting the diffusion of freeware/shareware into their client infostructures. Most important, you don't see many entrepreneurs making Larry Ellison kind of cash off freeware/shareware innovation (Netscape notwithstanding).

So what's the real story?

There are several stories here. The freeware/shareware model has in fact already infected the commercial world, and its impact may prove even more virulent as 2000 approaches. In the same way that large companies have banded together to pressure HMOs to revise their rules and procedures, it isn't so bizarre to imagine that large organizations tired of being held hostage by not-so-open technologies and constrictive licenses might unite to pool resources to manage the next generation of objects.

MIT's Web consortium has done an interesting job balancing proprietary innovation and community standards. Why wouldn't we see those kinds of pressures seep into the enterprise resource planning domain?

Freeware will rewrite the IT investments of global corporations.

Given that the most significant costs associated with enterprisewide software aren't development, but deployment and maintenance, it makes sense to bring to the enterprise the freeware/shareware community's support sensibility. Let's be blunt: Isn't that what beta sites do for commercial vendors anyway?

Consider this hypothetical: Microsoft, weary of its antitrust travails, declares that Windows and NT are now "freeware/shareware." All the application programming interfaces are published. The Redmond Gang won't make the bulk of its money selling software; it will make its margins selling customer support and maintenance contracts. Microsoft gets to control the brand, and everyone else gets to muck around with the code. What happens to the law and the market if billg declares his company's software as freeware/shareware?

Whoops! I guess I lied. This turned out to be a Microsoft antitrust column after all. □

Schrage is a research associate at the MIT Media Lab and author of No More Teams! *His Internet address is schrage@media.mit.edu.*

Memo to feds: Scram!

Bill Laberis

Six years ago almost to the day, *Computerworld* convened The Great Debate at the famed Alice Tully Hall in New York's Lincoln Center, boring into the subject of whether the U.S. should have a federal technology policy.

The debate was hosted by Marvin Kalb, one of the few credible TV journalists, and featured industry captains, an economist, a U.S. senator and an actively participating audience.

When the dust cleared that evening in 1992, the message to the feds also was clear: "Stay the heck out. The computer industry has done an absolutely marvelous job on its own innovating, attracting capital and generally offering customers better price/performance and plenty of choices."

Today, with Microsoft's head on the government chopping block and with our esteemed federal regulators mulling the re-emergence of telecommunications megaliths, what better time to echo the message from six years ago: Stay the heck out. Here's why:

Politicians are among the most incompetent, shortsighted, irresponsible people in America.

■ Politicians (as opposed to government workers) are among the most incompetent, shortsighted, irresponsible people in America. How else can you explain 13 years of the government's chasing down a multimillion-dollar antitrust rathole and producing not one scintilla of wrongdoing on IBM's part?

At Senate hearings earlier this year, Sen. Ted Kennedy (D-Mass.) grilled Bill Gates with stumbling questions that were barely comprehensible. The thought that politicians can and do have a significant role in the IT industry is scary.

■ Size doesn't matter if the markets are free. The megamergers and proposed megamergers in the telecommunications industry won't create anything other than big, lumbering giants — provided all aspects of the industry are free for any company to enter.

I have a horrible cable TV provider and won't see cable modem service for two years at least. I also have no choice because state governments saw it fit years ago to give cable companies virtual monopolies. Open up the damn markets, all of them, and you'll see a competitive free-for-all that will deliver heretofore unimagined benefits to businesses and consumers. The capital will flow to the innovative companies that have great ideas, not to the fattest cat on the block. Just let the market work, Mr. Senator, and keep your big nose out. Instead, we have committees being formed to look into the "remassification" of the telecommunications industry.

■ If government is looking for something truly useful to do for the computer industry and for the IT community, why not stop pandering to teachers' unions and start demanding a public school product that befits the highest per-student costs in the world? A mind-numbing 80% of Arkansas' sophomores failed the math section of nationwide competency tests in 1996. Why not make results-oriented education funding for good teachers and good programs the cornerstone of that technology policy debated six years ago in New York? That is, help deliver the scarcest item today in IT: educated and trainable people.

I can think of only one time when the federal government needed to insert itself significantly in the IT world: to break up AT&T and kick-start what has become the telecommunications revolution. But that old version of AT&T was a federally regulated monopoly, not a free-market competitor. Once the feds stopped insinuating themselves, telecom services plunged in price and soared in offerings.

There's a lesson there. □

Laberis was editor in chief at Computerworld from 1986 to 1996. He is now president of Bill Laberis Associates, a consulting and publishing company in Holliston, Mass. His Internet address is bill@laberis.com.

Now it's time to compete

David Moschella

The U.S. Department of Justice is doing its part. Now the question is whether the computer industry will respond.

It doesn't matter if some of the Justice Department's proposed remedies, such as the forced bundling of Netscape Navigator or the overemphasis on first-screen flexibility, seem a bit ham-handed. And it certainly doesn't matter how often grandstanding politicians mangle computer jargon with references to "operating software systems" or "the Java methodology."

The reality is that over time, the politicians will get smarter, and the effects of government pressure are already apparent. Bill Gates and company will be much more reluctant to propose tie-ins or other exclusionary deals, and Microsoft will certainly be much less likely to try to dictate licensing terms to PC or even Windows NT Server vendors. Those steps alone will go a long way toward leveling the playing field.

But are Microsoft's competitors even paying attention? Netscape, IBM, America Online, Oracle and Sun have been handed their last, best chance to loosen Microsoft's grip on the industry. Unfortunately, they continue to speak loudly while carrying a bunch of very small sticks.

Let's start with the fact that Netscape is pretty much dead in the water. In a free browser marketplace, it simply won't have the resources that will let it keep pace with Microsoft's all-out development efforts. Its effort to build a business as yet another Web portal is based not on any actual competency, but solely on being the default Navigator URL. Finally, the company is just too small to be a major enterprise software player. Clearly, Netscape must swallow its pride and admit that it needs help.

But at least Netscape is making an honest effort. Its so-called allies continue to do nothing at all, even though that clearly goes against their own long-term interests.

Consider IBM. The company is riding high on its image as the industry's leading electronic-business vendor. But much of that perception is based on the many blue-chip customers who use Lotus Notes.

With Netscape and Unix on the wane, Notes is now squarely in Microsoft's crosshairs. Exchange, its Notes competitor, is gaining fast. If Navigator goes down, it becomes more likely that Notes will eventually follow. IBM has tens of billions at stake.

Then there's America Online. As a media company, it has shown it can stay ahead of the software folks in Redmond. But can it really afford to cede control of how the Web is accessed to one of its biggest long-term rivals? Surely America Online would prefer that the online services business evolve as separately as possible from the software interface business. It, too, has grown rich through a mighty stock surge.

Microsoft's foes speak loudly but carry a bunch of very small sticks.

Finally, there are the Unix cult leaders, Oracle and Sun. Oracle is in a similar position to Lotus. Microsoft's control of the desktop will make it much more likely that SQL Server will eventually take over the volume Windows NT database market. As for Sun, a vibrant Navigator installed base would surely help Unix remain a viable alternative in an NT-centric world, especially among Internet service providers and other Web servers.

But all of the above has been true for several years now, and nothing has happened. Wouldn't it be sad and ironic if the government actually managed to build a level playing field, but all the leading competitors failed to show up? □

Moschella is an author, independent consultant and weekly columnist for Computerworld. His Internet address is dmoschella@earthlink.net.

Corporate Strategies

Case Studies ♦ Trends ♦ Outsourcing

Briefs

Are you beginning to overhire in certain areas in anticipation of an extended IT skills shortage?

Base: 441 CEOs at U.S. products and service companies. Margin of error +/- 3%

Source: Coopers & Lybrand LLP, New York

Finance sites online?

Financial services companies aren't as virtual as one might think, according to an Andersen Consulting survey of 164 top financial services executives worldwide. For example, only one in 10 U.S. financial companies is Internet-accessible to customers. The figure is 3% in Europe and 0% among Asian financial services firms. But financial services companies on the three continents expect to significantly increase Internet access over the next five years, with 59% of U.S. firms saying they expect to do so by 2003.

Drug firm outsources

Hoechst Marion Roussel, Inc., a pharmaceutical company in Somerville, N.J., has signed a five-year contract with Atlanta-based Vanstar Corp. to provide PC services and support to more than 3,000 end users. Key objectives of the project are to increase employee productivity and reduce total cost of ownership.

MESSAGE GLUT

Office workers send and receive an average of **190 messages** per day, and most get interrupted by such communications at least **three times per hour.**

Base: Survey of 1,000 workers at large companies

Source: Pitney Bowes, Inc., Stamford, Conn.

Investment tools help banks grow

▸ *Seek technical parity with brokerage firms*

By Thomas Hoffman

BROKERAGES AT banks have historically played second fiddle to full-service brokerages and discount brokers in the race to snare consumers' investment dollars.

That's because bank brokers are typically perceived as "less capable, less up-to-date and less professional" than investment bankers at regional brokerages such as Wheat First Butcher Singer in Richmond, Va., or a national brokerage such as Dean Witter & Co., said Victor Whang, who has worked at all three and is currently vice president of investments at Comerica Securities, Inc., a Bloomfield Hills, Mich.-based brokerage.

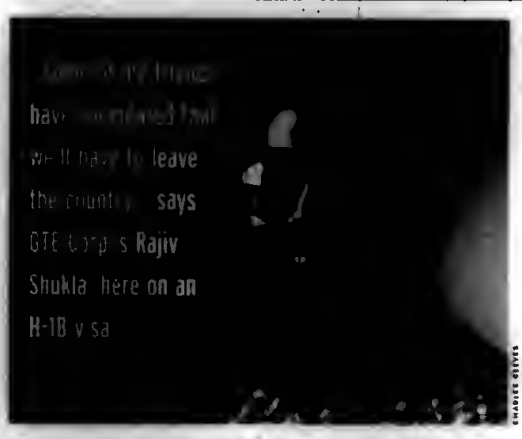
But Whang and another banker said an Internet-based investment system now lets them create an interactive investment plan in front of prospective customers just as brokerages such as Dean Witter do.

Whang uses investment software products from MoneyStar, an Austin, Texas-based developer. The software connects to a financial network where fund

Banks, page 34

Base: Interviews with customers and published subscriber data

Source: Meridian Research, Inc., Newton, Mass.



ERNESTO GIVES

These ATMs never forget a face

By Laura DiDio

THERE'S NO SUCH THING as putting on a false face in front of an automated teller machine (ATM) equipped with secure face recognition technology.

That capability is making check cashing easier and more secure for workers in 14 states as well as for the corporations that cash the checks.

Check-cashing company Mr. Payroll, Inc. in Fort Worth, Texas, is using the biometric face recognition technology in about 42 check-cashing ATMs in convenience stores and warehouses throughout the Southwest. It has almost completely eradicated fraud at those machines and bolstered customer confidence, according to Mr. Payroll's top officers.

Mr. Payroll installed biometric technology last year from Miros, Inc. in Wellesley, Mass. The software works by registering the unique heat signature created by the pattern of blood vessels in a person's face. Scanners at ATMs scan users' faces before they use the machine and compare the images with the file copy stored on a TrueFace server. It is more accurate than biometric techniques such as voice recognition and retinal scans, which can be counterfeited, Mr. Payroll executives said.

TrueFace enrolls customers by recording several images of their faces, which are then stored in the database and used for identification. A touch screen prompts them verbally for their Social Security numbers. No other information —

ATMs, page 34

Possible U.S. sanctions concern Indian workers

By Barb Cole-Gomolski

WHEN INDIA ANNOUNCED that it had conducted tests of nuclear bombs last month, the stir it caused wasn't just political.

Companies that rely on India for high-tech workers began to wonder if one of their most steady streams of labor was about to dry up.

According to the Immigration and Naturalization Service, Indian nationals received 44% of the H-1B visas this past year. The H-1B visas let information systems professionals as well as other highly skilled workers hold a job here for three years.

For now, the issue is moot because the 1998 65,000-person cap on H-1B visas has been reached. No new immigrant visas will be issued until October. But by then, a major source of foreign workers could be curtailed, companies fear.

As tensions flared between the U.S. and India, Indians working here began to receive E-mail messages from other Indian immigrants here on H-1B visas. The short-term immigrants feared that the U.S. sanctions would force them to return home.

"I have heard a lot of rumors in the last few weeks," said Rajiv Shukla, an Indian here on

H-1B visas, page 34

CIOs chafe as they float

Believe it or not, these CIOs are relaxing. The deal: give up cellular telephones and E-mail for a three-day cruise aboard the *Queen Elizabeth 2*. Sound easy? It isn't. See page 34

THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICROFORM EDITION.

ATMs circumvent fraud with faces

CONTINUED FROM PAGE 33

photo ID, personal identification number or ATM card — is required to cash a check.

What makes the system so valuable, said Dan Feehan, Mr. Payroll's chairman and co-CEO, is that it goes far beyond performing basic user authentication and verification. "TrueFace will also record the facial image of anyone who unsuccessfully tries to get money from one of our ATMs. And it will notify us and display that person's image from our administrative console. TrueFace also detects any fraudulent attempts to use a photograph of an authorized person," Feehan said.

That last feat is accomplished by TrueFace's ability to employ a "two-look view" through the ATM's built-in camera to assure that it is looking at a real face and not merely a picture image.

"The system has worked flawlessly in 12 months of use. We've had over 140,000 verified transactions and no false positive IDs," said Mike Stinson, Mr. Payroll's president and co-CEO. "The success of this product has convinced us that biometrics will be an integral part of the way financial transactions will be conducted in the future."

Mr. Payroll also liked the fact that Miros' TrueFace system was less obtrusive than other biometrics technologies that record fingerprints or retinas.

"There's a growing consumer backlash against some of those methods because some people find them unnecessarily intrusive. We've even had some people tell us they feel like criminals when they're fingerprinted," Feehan said. "But face recognition is another story — people routinely get their photos taken for drivers' licenses and employee ID cards."

Chance Weaver, a manager at McLane FSP, a Wal-Mart Stores, Inc. subsidiary in Temple, Texas, said McLane uses the Mr. Payroll machines in its warehouses to let employees cash their paychecks.

"It's worked very well. Our employees love it. They get convenience and security at the same time," Weaver said.

Gary Lynch, a security analyst at Gartner Group, Inc. in Stamford, Conn., said Mr. Payroll's use of biometric face recognition technology gives it an edge over rivals. "TrueFace is currently one of the very few retail applications of face recognition technology to verify identities for check cashing," Lynch said.

Mr. Payroll is so pleased with the system that starting this month it will expand TrueFace usage to include all traditional ATM transactions.

"It's driven by the need for security and simplicity in a single package. Face recognition is a painless way for businesses to get a simple, noninvasive authentication, process," Lynch said. □

Mr. Payroll Co-CEOs Mike Stinson (left) and Dan Feehan say they are pleased that there have been no false positives

Unplugged on the *QE2*

By Paul Gillin

TAKE 250 FINANCIAL industry CIOs, put them on a boat for three days, shut off their telephones, pagers and E-mail and you get — withdrawal.

That's what happened last month when a shipful of information systems executives steamed out of New York harbor aboard the *Queen Elizabeth 2* for a three-day cruise to nowhere. The event, was the CIO Forum, a floating trade show sponsored by New York-based Richmond Events, Inc. In exchange for free passage aboard the luxury liner, attending chief information officers had to give up all distractions.

NONSTOP CALLING

It wasn't easy. Though calls to the mainland had to go via satellite (at $12.50 per minute), the ship's five phone lines were jammed from 5 a.m. until midnight, according to Jim Barlow, chief radio officer. "We'll do 7,000 minutes of phone time in three days," he said, when interviewed late on the second day. "Usually we do 6,000 minutes in an entire month."

The trip demonstrated that CIOs can't stand to be away from their electronic tethers for long. One attendee received an 87-page fax at a charge of more than $500, Barlow said. Another claimed that message deprivation was causing her to break out in hives.

"There is this nagging sense that something's gone terribly wrong at home, but I can't do anything about it," said Robert Sorrentino, a vice president at The Chase Manhattan Corp. But like many attendees, he said that once he accepted the isolation, he began to enjoy it. "My blood pressure has probably dropped an points," Sorrentino said. □

Banks

CONTINUED FROM PAGE 33

managers can search for fund information. It includes MoneyStar LifeScript, an interactive financial modeling package that lets bank brokers engage clients in a short question-and-answer session and create a personalized financial plan and time line for them.

By showing a client how an investment could grow over time, "it helps the client to become much more comfortable working with a bank broker," Whang said.

"I've had a number of customers say, 'Had I never seen this program, I would not have known whether I was on the right track to reach my retirement goal needs,' " said Whang, whose employer is a subsidiary of Detroit-based banking company Comerica, Inc.

Those tools are good news for brokers such as Whang because the banks they work at have lost more than 40% of customer deposits over the past 30 years to higher-yielding mutual funds and the stock market.

Passbook savings accounts and certificates of deposit typically yield single-digit returns, while the Standard & Poor's 500 stocks have generated hefty double-digit returns during the nine-year bull run.

Meanwhile, the increase in low-cost Internet-based investment firms that let consumers make their own investment decisions is making it more difficult for all brokers.

FN Investment Center — a subsidiary of San Francisco-based California Federal Bank — was a MoneyStar beta-test customer for the past two years before using the software in production mode for the past two months.

Today, 70 of its financial advisers use the system to create financial plans, gather product research and explain, in layman's terms, how mutual funds and variable annuities work, said Deborah Bernot, president of FN Investment Center.

Bernot said salespeople at California Federal Savings typically refer customers to FN Investment Center if they are looking for different ways to invest their money. She said using interactive software such as MoneyStar can help her salespeople fulfill customers' long-term investment needs "on an ongoing basis" instead of on a transaction-by-transaction basis.

Bernot said it is too early to quantify the number of new customers the software has helped the company win. But she said customers are asking more questions about investment options, and she added that she hopes that will translate into additional business.

MoneyStar LifeScript costs $475 per user per year. MoneyStar Financial Network is included with a LifeScript subscription.

Competing products include the Naviplan software suite from Emerging Information Systems, Inc. in Winnipeg, Manitoba. □

H-1B visas

CONTINUED FROM PAGE 33

an H-1B visa working at GTE Corp. in Waltham, Mass. "Some of my friends have speculated that we'll have to leave the country, but I really hope it doesn't come to that."

"If you are relying on a large Indian labor force, you'd be insane not to be concerned when one of those bombs went off," said Jim Thomas, vice president of marketing at Tata Consultancy Services in Dallas, India's largest software development house with U.S. offices.

"Initially, concern was high," Thomas said. But now that the U.S. sanctions have been issued, we're more at ease, he said. U.S. subsidiaries of Indian companies, such as Tata, would be subject to the same limits as any U.S. business. But now that the U.S. sanctions have been issued, Tata officials are more at ease, Thomas said.

The U.S. State Department said the sanctions don't affect Indians working here and aren't meant to restrict future emigration from India. The sanctions cut off loans for long-term development in India. Several immigration attorneys said they have told their Indian clients here on work visas not to be concerned at this point. "The storm seems to have passed," said Marc Yelnick, an immigration attorney in San Mateo, Calif. He added that it would be unusual for the sanctions to extend to workers already here.

Shukla said his mother and grandmother received tourist visas to vacation in the U.S. in the past few weeks, which he interprets as a positive sign.

Susie Nisbit, a human resources manager at SAS Institute in Cary, N.C., said the tensions with India wouldn't affect efforts to recruit IS professionals from India. "We wouldn't deny [an Indian] a job at this point," Nisbit said. □

Source: U.S. Immigration and Naturalization Service, Washington

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Briefs

International taxation

Hard goods ordered on the World Wide Web and shipped across international borders aren't covered by a recent accord that exempts Internet purchases from taxation. In the agreement, the 132-member World Trade Organization has agreed to refrain from taxing Internet transmissions for at least a year, according to U.S. government officials.

Virtual net services

More than half of 100 Internet service providers surveyed recently said they plan to offer virtual private network services by next February. Half also said they will offer service-level guarantees to customers by then. The survey, conducted by Infonetics Research, Inc. in San Jose, Calif., questioned service providers with 11 or more employees. There are an estimated 4,900 Internet service providers nationwide, according to Infonetics.

HTML ad use grows

The number of Web sites that use embedded Hypertext Markup Language (HTML) advertisements grew 100% from January to April this year, according to a survey of 1,700 sites by AdKnowledge, a Palo Alto, Calif., Internet ad firm.

Embedded HTML allows more interactive Web pages.

There also was a 35% increase in ads using Java and a 20% rise in [illegible] use.

RESEARCH GULF

Estimates of worldwide consumer electronic-commerce revenue last year varied widely

RESEARCH FIRM	ESTIMATE
Cowles/Simba	$1B
EStats	$1.8B
Morgan Stanley	$2B
Forrester Research	$2.4B
Jupiter Communications	$2.6B
The Yankee Group	$2.8B

Source: 1998 ECommerce Report, EMarketer (www.emarketer.com), New York, based on published estimates from several primary research firms

A battery of benefits online

▸1-800-Batteries would rather sell on Web

By Sharon Machlis

ELECTRONIC COMMERCE

ALTHOUGH MANY consumers aren't yet ready to buy goods over the Internet, people who regularly use laptop batteries, cellular telephone accessories and other mobile gadgetry seem more likely electronic-commerce candidates than most.

So, though Internet sales are a relatively small percentage of many companies' sales, 1-800-Batteries expects more than 20% of its revenue to come from its World Wide Web site this year. "Our folks are really in a hurry," said Ken Hawk, president of the company. "Our customers use computers. They're on the 'net."

The move to electronic commerce has been good for the Reno, Nev., company's bottom line. Phone orders cost about $14 each to process, whereas Web orders cost less than $7. The company now offers a $2.50 discount for online orders as a way to entice buyers onto the Internet. The company estimates it will see $17 million in sales this year, up 137.5% from $8 million last year, with Web sales jumping even more — 220% in the first quarter compared with a year earlier.

LESS COST, FEWER ERRORS

"We get about three calls for every order. We're paying for all those [toll-free] calls," Hawk said. "On the Web, we're not paying for anything." In addition, orders entered by customers themselves tend to have fewer errors than those dictated over the phone.

"There's no real paperwork," said Robin Palmer, partner in charge of the electronic-commerce practice at KPMG Consulting in Mountain View, Calif. "You get significant efficiencies."

1-800-Batteries first moved to online ordering in the spring of 1994. By the following year, such orders comprised "maybe a couple of percent" of overall

1-800-Batteries, page 38

EUROPEAN SUMMIT

Businesses discuss Web payoffs

By Jeanette Borzo

JOHN TAYLOR, a real estate agency that handles luxury properties in the south of France, recently used the Internet to link its offices with an intranet, giving agents in offices throughout the region access to all property information for the first time.

The French company also set up a World Wide Web site that lets potential customers view its properties online. It expects to make back its electronic-commerce investment within one year, said Roque Oller, a company official.

Like many attendees at International Data Corp.'s recent ECommerce Forum in Monte Carlo, Monaco, John Taylor's experience suggests that the success of electronic commerce will be in business-to-business sites as much as, if not more than, in consumer-oriented sites.

European summit, page 38

A WEB STUDY

Harvard Business School Publishing: Publishes management books, *Harvard Business Review* and more than 7,500 case studies on business concepts and processes

Business objectives: Expand reach into businesses and educational institutes. Cut down on promotional costs

Approach: Use the World Wide Web

Initial budget: $37,000

Payback: Sales of more than $160,000 per month via the Web

Harvard school uses Web to cut costs, grow

By Jaikumar Vijayan

HARVARD BUSINESS SCHOOL Publishing (HBSP) has apparently learned something from the case studies it publishes. In adding a World Wide Web component to its operation, the company has adopted the medium to pursue new customers and cut production costs.

In the process, Cambridge, Mass.-based HBSP — a wholly owned subsidiary of Harvard Business School — has taken a $37,000 investment and, in two years, built it into a business that generates more than $160,000 in revenue per month. And it is growing at about 500% annually.

Those figures — with 54% of the revenue from new customers — are a distinct improvement on previous revenue, said Joel Hughes, a vice president at HBSP. He declined to provide many details.

Some companies are using the Internet to change their business models, says Marty Gruhn, an analyst at Summit Strategies.

Harvard, page 39

Retailer to auction off stock online

By Alan Alper

ONLINE AUCTIONS are becoming big business. Analysts count about 200 auction sites on the World Wide Web and thousands of auctions going on at any one time, hawking everything from overstocked computers to music, collectibles, airline tickets and even livestock.

The latest company heading to the auction block is Sharper Image, Inc. (*www.sharperimage.com*), a San Francisco-based purveyor of quirky, often high-

Sharper Image, page 37

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www.computerworld.com/ecommerce

Find an expanded version of this story and more electronic-commerce analysis at Enmarco, Computerworld's electronic-commerce website, updated biweekly.

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German publisher to join Web booksellers

By Richard P. Greenfield

Bertelsmann AG is best known for book publishing, even in the U.S., where, with its recent decision to buy Random House, it strengthened its position as the third-largest media conglomerate in the world (after The Walt Disney Co. and Time Warner, Inc.).

Lesser known may be its numerous European electronic-commerce initiatives, including an online bookselling venture with AOL Europe. The company also was an early investor in Lycos' German subsidiary. And Bertelsmann will soon launch its own bookselling site on the World Wide Web into what is a crowded market, at least in the U.S.

Emmerce, Computerworld's electronic-commerce webzine, recently visited Bertelsmann's corporate headquarters in Gutersloh, Germany, to talk to Klaus Eierhoff, the newly appointed head of Bertelsmann's new-media ventures. The full interview appears at www.computerworld.com/emmerce.

EMMERCE: When do you expect to roll out your book buying service, and how do you feel about coming in behind Amazon.com, Inc.?

EIERHOFF: We don't feel that being first in the market is necessarily the largest advantage; sometimes it can be proof-of-concept. Bertelsmann is unique [i.e., unlike Amazon.com or BarnesandNoble.com, Bertelsmann is a publisher]. Right now we are looking carefully for a standardized software platform, and we expect to have a summer pilot running in the U.S. and the [European Union].

EMMERCE: How do you intend to deal with issues such as the euro and the different pricing structures in the U.S. and in the EU?

EIERHOFF: Our system will be euro-compliant from the beginning, and we believe that an international approach means working with one price structure across the system.

EMMERCE: The U.S. Federal Trade Commission raised some questions about the sale of Random House and market concentration, some of which may have been linked to the proposed online venture. What is your reaction to that?

EIERHOFF: Talks held with the FTC so far do not give us any reason to believe that the approval of the takeover will not be forthcoming or that we would not be able to adhere to our timetable. More specifically, there are no indications to suggest that the FTC might demand any disinvestments from us. Also, Booksonline.com will naturally offer and sell books from other publishers.

EMMERCE: Where do you see the major part of your online efforts going, and how much electronic commerce will there be in that mix?

EIERHOFF: Well, this is the most important question to us right now. On the one hand, through AOL Europe, which now includes CompuServe, we have close to a million people on our network. We have to integrate electronic commerce with the network or with a specific doorway [e.g., Lycos]. And those total revenues which should be from online ads, electronic commerce and monthly fees, should be capable of carrying these ventures.

EMMERCE: Do you think you can make the online shopping experience convenient and compelling enough to really get people involved both in the U.S. and the EU?

EIERHOFF: We don't expect that online will ever substitute 100% for real-life experiences, but [the Web] will somewhat decrease their importance. The German Retail Association predicts that electronic commerce will be 5% of the retail business within five years. That equals 35 billion deutsche marks [about $19.4 billion at the current exchange rate], and that number is the same as what the mail-order business currently does.

EMMERCE: How closely are you watching developments in the underlying technology, and where do you want to position Bertelsmann?

EIERHOFF: Well, we don't want to acquire companies to build platforms, but we are very interested in new platforms, particularly any that can bring new forms of access to television or phone. Our criteria there are simple: transparency to the user of any interface and a low enough price point that it is practical to pursue as a mass application. □

Greenfield is a freelance writer and consultant in New York

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Sharper Image

CONTINUED FROM PAGE 35

tech novelties. Sharper Image's products range from $2,000 custom massage chairs to chic electronic organizers and other proprietary toys, such as the latest in neck cooling fans.

Organizations use Web-based auctions to move excess stock as well as returned and refurbished or just plain hard-to-find items. Auctions enable Web businesses big and small to turn major losses into minor ones or even eke out small profits by cutting stocking costs or generating incremental purchases from bargain-hunting return customers.

MOVING GOODS OUT

At Sharper Image, revenue generation isn't the primary auction goal; rather, the company wants to move goods out of its stores — such as unpopular high-end custom furniture — to make room for newer, more appealing products that contribute more to the bottom line. The company will add the auction feature later this month as part of an overhaul of its Web site, which was designed to simplify shopping.

"We're taking an obvious expense, and if we sell [hard-to-move products], it's a boon to the company," explained Joshua Tretakoff, senior manager of alternative media at Sharper Image.

Initially, Sharper Image expects to hold five or six auctions per week. Because of the small volume, the company won't integrate the auction function with its back-end systems. "It's [cost]-prohibitive to do, we want to see the volume first," Tretakoff explained.

The auction technology, supplied by Open Site Technologies, Inc. in Research Triangle Park, N.C., will connect, however, to Sharper Image's custom Web site. The site was built with Apple Computer, Inc.'s Web Objects and runs on a Sun Microsystems, Inc. Solaris 540 server. The retailer uses the enterprise version of OpenSite's auction software, which works with OpenBase, the Open Database Connectivity-compliant database that Sharper Image used to manage its product catalog.

"We selected OpenSite because it is the most comprehensive and mature product on the market," Tretakoff said. "It's also the only one we thought could do the job."

OpenSite is also one of the best known players in what is quickly becoming a crowded field, said Varda Lief, an analyst at Forrester Research, Inc. in Cambridge, Mass. The company counts 85 customers, including Daddy's Junky Music Stores, Inc. (*www.rockauction.com*) and Currans Cards (*www.currans-cards.com*), a sports card Web emporium.

Tretakoff said auctions are a natural evolution of the Sharper Image's Web site, which is one of the few retail sites said to be making money, or at least breaking even, according to Wall Street watchers. Tretakoff wouldn't provide details.

There's a lot of money to be made in Web auctions by well-known retailers with buffed brand recognition, Forrester said. "It's an area that's not been fully addressed yet." □

NEW PRODUCT

NET-IT SOFTWARE CORP. has announced Net-It Central 2.5, server software that lets end-user departments publish documents to the Internet.

According to the San Francisco company, the software can publish documents to corporate intranets regardless of the application used to create them or the viewing platform. To publish, users drag and drop documents into online folders. Net-It Central 2.5 can be run as a service to Windows NT, and it recognizes hypertext links in documents.

The software costs $4,995 per server. An edition with an open application programming interface for integration with document management or groupware applications costs $6,995 per server.

Net-It Software
(415) 551-0646
www.net-it.com

Snapshot

The energy industry is out front with electronic commerce now, but it may one day be dwarfed by financial firms

INDUSTRY	% OF COMPANIES USING E-COMMERCE	% OF COMPANIES WITH E-COMMERCE PLANS
Consumer business	8.4%	43.4%
Energy	23.3%	37.2%
Finance	12.1%	54.3%
Health care	6.1%	33.3%
Manufacturing	9.2%	34.1%
Public sector	20.4%	38.8%

Base: Survey of more than 1,000 CIOs

Source: Deloitte & Touche Consulting Group, New York

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By Richard P. Greenfield

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"We selected OpenSite because it is the most comprehensive and mature product on the market," Tretakoff said. "It's also the only one we thought could do the job."

OpenSite is also one of the best-known players in what is quickly becoming a crowded field, said Varda Hief, an analyst at Forrester Research, Inc. in Cambridge, Mass. The company counts 85 customers, including Daddy's Junky Music Stores, Inc. (www.rockauction.com) and Currans Cards (www.currans-cards.com), a sports card Web emporium.

Tretakoff said auctions are a natural evolution of the Sharper Image's Web site, which is one of the few retail sites said to be making money or at least breaking even, according to Wall Street watchers. Tretakoff wouldn't provide details.

There's a lot of money to be made in Web auctions by well-known retailers with buffed brand recognition, Forrester said. "It's an area that's not been fully addressed yet." □

NEW PRODUCT

NET-IT SOFTWARE CORP. has announced Net-It Central 2.5, server software that lets end-user departments publish documents to the Internet.

According to the San Francisco company, the software can publish documents to corporate intranets regardless of the application used to create them or the viewing platform. To publish, users drag and drop documents into online folders. Net-It Central 2.5 can be run as a service to Windows NT and it recognizes hypertext links in documents.

The software costs $4,995 per server. An edition with an open application programming interface for integration with document management or groupware applications costs $6,995 per server.

Net-It Software
(415) 551-0646
www.net-it.com

Snapshot

The energy industry is out front with electronic commerce now, but it may one day be dwarfed by financial firms

INDUSTRY	% OF COMPANIES DOING E-COMMERCE	% OF COMPANIES WITH E-COMMERCE PLANS
Consumer business	8.4%	43.4%
Energy	23.3%	37.2%
Finance	12.1%	54.3%
Health care	6.1%	33.3%
Manufacturing	9.2%	34.1%
Public sector	20.4%	38.8%

Base: Survey of more than 1,000 CIOs

Source: Deloitte & Touche Consulting Group, New York

European summit

CONTINUED FROM PAGE 35

Markets such as the insurance and automobile industries have a great need to interact with a wide range of partners and providers, and the Internet often is the best place to do that, said Stefano Zanini, an IBM manager whose territory includes Europe, the Middle East and Africa. "The Internet is not just more efficient. It is often the only solution that is affordable," he said.

In such cases, an electronic-commerce system may not generate any profits but will reduce a company's cost of doing business. For a small auto repair shop that wants to link to different auto parts manufacturers to order replacement parts, Zanini said, "they have to go with the Internet — they can't connect via a proprietary system. The Internet is the only cost-effective solution."

Ari Palhamo, director at CardPlus Oy in Helsinki, said extranets — network connections that provide access to companies' internal databases or intranets by business partners — are the fastest-growing aspect of electronic commerce. By 2000, the extranet market for business-to-business services will be 40 times larger than it is today, Palhamo predicted.

With help from Hewlett-Packard Co., CardPlus has set up just such a business-to-business system for the Finnish clothing industry. The extranet links different market players, eliminates the need to print and update paper-based clothing catalogs and automates retail clothing orders to speed production.

It also provides a new venue for

1-800-Batteries

CONTINUED FROM PAGE 35

sales, Hawk said. At that time, he said, "there wasn't a lot of off-the-shelf software. We learned a lot."

One lesson the company discovered the hard way: Making different pieces of software work together isn't as easy as the vendors like to say it is. In one case, after customers went through a multistep search process to find their product, the system lost the order information when it came time to deposit that selection in their shopping cart.

"You had all this finger-pointing [among vendors]," Hawk said. "We literally had to get them in the same room. . . . That was painful." Meanwhile, the company lost business because customers couldn't complete their orders.

The move to electronic commerce has been good for 1-800-Batteries' bottom line. Phone orders cost about $14 each to process, whereas Web orders cost less than $7.

Now, instead of worrying about getting the best possible bells and whistles by buying best-of-breed software for individual functions, "I would give up some functionality to make sure if there's a problem, it gets fixed quickly," Hawk said. The company moved to IBM's Net.Commerce suite in November, and Hawk said he is pleased with its performance so far in handling order transactions and tying in to back-office functions.

Hawk said the system time needed to complete and process an order is 46% faster with the integrated Net.Commerce system.

HOT, HOT, HOT

Online sales are hotly competitive. Major corporate buyers with enough market clout often want suppliers to set up private Web purchasing sites for them instead of their having to go to a vendor's site, said Roy Satterthwaite, an analyst at Gartner Group, Inc. in Stamford, Conn. That could make it hard for players such as 1-800-Batteries to compete for large-volume corporate business.

But those with smaller volumes could find such sites attractive, he added. "There's a role for niche marketplaces [on the Internet]," Satterthwaite said. "The niche marketplace is a viable channel. You've got to pick your product category, and they picked one." □

launching products in addition to the clothing industry's two annual designer exhibitions.

Through the site, called InterTeva, users can access ordering and inventory, retailers can specify more than one store location for delivery, and all users can search for items by clothing maker, special price, brand name or collection. After a test period that began in January, InterTeva went live to the entire clothing industry early this month.

"Now designers can present new clothing articles outside of the standard spring and fall collection announcements," Palhamo said. "The idea came from small retailers who wanted a way to compete with the large clothing retail chains."

It is too early to say how much money InterTeva will generate or save, but "the system offers better customer service and equals more sales," Palhamo said.

The InterTeva system currently is trilingual, operating in Finnish, Swedish and English. The company will add Russian and German later this year, Palhamo said. Palhamo hopes to take his system to the clothing industry in other countries in Europe. □

Borzo is Paris bureau chief for the IDG News Service.

ENEMY FIRE
WARRING FACTIONS
THE OCCASIONAL
AMBUSH
Raytheon
Wireless
Solutions

Harvard

CONTINUED FROM PAGE 35

The numbers also are a testimony not just to the reach of the Web but also to the way some companies are using the Internet to change their business models, said Marty Gruhn, an analyst at Summit Strategies, Inc. in Scottsdale, Ariz.

"What is interesting about their effort is that they didn't just put their current business processes on the Web; they looked at it as an opportunity to tap new revenue" streams, Gruhn said.

HBSP publishes a variety of management books, videos, CD-ROMs, periodicals (including the *Harvard Business Review*) and more than 7,500 case studies on business practices for use by corporations and educators.

The publishing unit decided to turn to the Web because it wanted to deliver those products more efficiently to customers and to tap new business opportunities, said Joel Hughes, a vice president at HBSP.

"The capability of storing and feeding our material over the Internet gave us a chance to deliver our end products a lot more quickly" and innovatively to customers around the globe, Hughes said.

One of the most impressive business gains on the Web has been in the area of case studies. Before getting on the Web, HBSP sold promotional samples of case studies to potential customers at $2 per sample for students and about $5 for corporate customers. The actual cost of providing each copy, though, including postal and warehousing charges, was $6. It was a difference the school was willing to absorb as the cost of doing business.

TRIPLE PLAY

Making those samples available on the Web to preregistered users has given HBSP a way to eliminate those costs, deliver samples free to potential customers and better track demand for each report.

"They are using free samples to attract volume purchases of their reports," Gruhn said.

Similarly, to simplify online purchases, HBSP has built an online purchasing system that lets users browse through catalogs and report descriptions and to purchase them using credit cards. Orders submitted via the Web go directly to HBSP's ordering system, where they are processed. The materials are delivered either electronically or via postal mail.

New revenue opportunities include the ability to deliver customized HBSP management resources to customers via their intranets. HBSP has begun selling such packaged resources — which can include how-to videos, and management guides — to customers browsing its Web site. Similarly, HBSP is using the Web to help some of its larger customers set up online virtual universities for their employees, Hughes said. □

www.computerworld.com/NewsBeat

The Enterprise Network

LANs • WANs • Network Management

Briefs

LAX SECURITY

According to a recent poll of Fortune 1,000 companies:

- Less than 30% enforce security policies within their organizations
- More than 40% don't have a policy to secure their electronic information
- Only one in eight firms conducts daily security monitoring
- About 60% have a security plan in place
- About one in seven companies upgrades its technology fast enough to keep up with business change

Base: Random survey of 100 IT executives at Fortune 1,000 companies; multiple responses allowed

Source: Open Systems Advisors, Inc., Boston

Tool for sluggish nets

Optimal Networks Corp., based in Palo Alto, Calif., last week introduced three trouble-shooting systems for its software, which analyzes application performance. Now network managers and developers who run Application Expert can decode protocols for transactions between clients and Informix, Oracle and Sybase databases in minutes to reveal slowdowns and communication problems. The tool costs $15,000; the modules are free through June.

Customer accounts at Internet providers

Consumer accounts	
1998	1,748*
1999	3,111*
Business accounts	
1998	1,680*
1999	3,238*

* Projected

Base: Survey of 100 Internet providers with 11 or more employees

Source: Infonetics Research, Inc., San Jose, Calif.

Analysts bet on DSL; users still unsure

By Matt Hamblen

WILL DIGITAL SUBSCRIBER Line (DSL) service for faster access to the Internet catch on with business users? Analysts say it will, but users aren't as sure.

"Many telecom managers are waiting for the success stories with DSL technology," said Ron West, former president of the Communication Managers Association, a user group in Morristown, N.J. "I've seen DSL pushed more in the press than in the field."

DSL is a high-bandwidth digital technology that uses existing twisted-pair wire, so it's faster to install than a T1 line.

Several respected consulting firms have projected phenomenal growth in DSL technology and service. Gartner Group, Inc. in Stamford, Conn., predicts annual growth rates of more than 300%, with more than 1 million DSL lines installed by 2001 — up from fewer than 50,000 now.

Analysts' confidence in the market's growth is based on the strong need for faster connections to the Internet sought by consumers and business users who telecommute or work in remote locations.

Projected growth in Digital Subscriber Lines*

1997	1,500
1998	50,000
1999	280,000
2000	800,000

* Includes Asymmetric DSL, DSL Lite and Symmetric DSL

Source: Gartner Group, Inc., Stamford, Conn.

ATTRACTIVE FEATURES

The most-discussed variant of DSL, Asymmetric DSL (ADSL), boasts downstream speeds that are more than 30 times faster than 56K bit/sec. connections. But analysts said the upstream speeds are much slower, making ADSL less attractive for business users who need to push large files to colleagues and business partners.

Several carriers are deploying or testing Symmetric DSL (SDSL) to solve the need for fast upstream speeds using equipment by start-up vendors such as AccessLan Communications, Inc. in San Jose, Calif., or Copper Mountain Networks, Inc. in Palo Alto, Calif. [CW, May 25]. And established networking vendors such as Cisco Systems, Inc. and Bay Networks, Inc. have entered the arena.

Competitors in the SDSL market hope to attract customers with lower price and convenience of installation, compared with installing T1 lines, analysts said. AccessLan will give businesses a 1.5M bit/sec. SDSL connection at lower cost than a typical T1 (1.544M bit/sec.) connection from a telephone company, said Gartner analyst Tim McElgunn.

"If DSL spreads as quickly as we think it will, there will be

Doubtful of DSL, page 42

Tivoli downplays management road map

By Patrick Dryden
ORLANDO, FLA.

TIVOLI SYSTEMS, INC. quietly disclosed details about the imminent overhaul of its management software and future enhancements during the recent U.S. user conference here.

Tivoli hopes to simplify the setup and use of the complex batch of tools for its systems and network management product, yet scale to handle bigger client/server environments and keep track of distributed applications.

First, a major rewrite of the Tivoli Management Environment (TME) — a development project called Tsunami — should hit in August with the release of TME 3.6. Future options cooking in the labs range from voice-interactive consoles to self-healing tools (see chart).

WHAT'S COOKING

Research and development at Tivoli includes:

Speech recognition: Would let help desk staff speak commands to display information, start tasks

Visualization: Operators would be better able to understand complex data (not a 3-D control console)

Artificial intelligence: Would predict events by recognizing trends, patterns and automate responses to maintain service levels and free help desk staff

Data warehouse/data mining: Would analyze information about infrastructure and activity so operators and help desk can make decisions and optimize performance

HYPE-FREE?

But Tivoli executives at the conference emphasized available products, real installations and tangible paybacks [CW, March 25]. The company purposefully avoided making announcements because hype is "all too familiar in the history of the management software industry," said Jan Lindelow, president and CEO of the IBM division in Austin, Texas.

That's a welcome change, users and analysts said, because Tivoli initially oversold the software and left early adopters stranded without adequate design and implementation help.

But now users are getting "confused messages" about TME 3.6 and only "vague descriptions of future product directions," said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

"To downplay the complete rearchitecting of TME as a point release is bizarre," Mason said. "At some point, Tivoli needs to be more clear about what's coming."

The new TME framework will synchronize management information among multiple servers to more efficiently handle large numbers of desktop machines and network devices.

The new "lightweight agent" will be able to download management functions as needed from servers instead of requiring an upgrade to do new tasks. And operators will be able to work through a browser interface.

TME 3.6 promises to help managers make changes rapidly, adding new manageability to far-flung PCs without upgrade headaches. And that is "very important because systems

Tivoli, page 42

NETWORKING

High-speed wireless LANs gain ground

By Kim Girard

BECAUSE HE'S ON a wireless network, Joe L. Mossa, a district manager at Consolidated Papers, Inc., no longer needs to wait 20 minutes to update his customer contact database.

Mossa, who sells paper to distributors from the company's Los Angeles office, used to dial in to the corporate network to synchronize his customized Notes database.

About a month ago, he began using an antenna and special modem with his notebook PC. The modem uses radio waves to update data and beams information to the office printer at a rate of 10M bit/sec. — as fast as standard Ethernet.

"It's just leaps and bounds faster," Mossa said. "It takes a tenth of the time now to sync data," which means a wait of two to five minutes instead of 10 to 20 minutes.

Wisconsin Rapids, Wisc.-based Consolidated Papers now uses wireless connections in

Wireless LANs, page 42

Vendor group works on voice/data standard

By Jana Sanchez-Klein
LONDON

AN INDUSTRY GROUP led by British Telecommunications PLC is working to create standards that would help businesses automate certain types of voice and data calls.

The group comprises BT, DGM&S Telecom, Inc., Microsoft Corp., Nortel, Inc. and Siemens AG. It is developing a specification for an open network interface designed to encourage application development by software and systems providers.

For example, vendors could develop an application that would classify and route telephone calls based on where the calls originated. Some calls might be diverted to voice mail. Others might be sent to mobile telephones or to another person in the company.

The specification would let those applications run on any telecommunications provider's network, said Mike Carr, a member of BT's technology strategy unit.

"You wouldn't get serious applications developers [developing applications] just for the BT network," he said.

The group will publish the first version of specifications later this year, Carr said.

After development, the specification will go to an international standards body, such as the International Telecommunications Union, as a proposed global standard. □

Sanchez-Klein writes for the IDG News Service in London.

Tivoli quietly ushers in TME

CONTINUED FROM PAGE 41

management is a moving target," said beta tester Allan Bentley, TME project manager at mortgage banker Halifax PLC in the U.K.

Despite the significant changes in this release, Tivoli offered just one workshop describing TME 3.6 migration, and officials barely mentioned upcoming capabilities.

They missed the promotional prime time, Mason said. Rival Computer Associates International, Inc. would have "trumpeted the rollout" of an upgrade of such magnitude, he said. But Tivoli "considers waiting until completion a badge of honor," he said.

Several TME users said they will wait anyway — until the software ships and proves to be stable — before they consider migration.

FEW DETAILS

Still, planning ahead is difficult when information is sketchy, they said. For example, questions arose about the size of the agent software and what platform's TME 3.6 will support.

The agent could take anywhere from 300K to 2M bytes from each client, depending on how many modules it downloads into a local cache.

Managers will have to tune the agents to find the best balance — either consume lots of local storage by caching any tool they might need or flush the cache often but pay the price in network bandwidth to reload.

All operating systems will be covered when the new version ships in August, said Martin Neath, senior vice president of the Tivoli product group. □

Users doubtful of DSL

CONTINUED FROM PAGE 41

pressure on telcos to eat their T1 prices," McElgunn said.

Another factor is how long it takes a company to install its own on-premise SDSL equipment, compared with waiting for a T1 connection, users said.

With SDSL, a small router is installed at the business and an access concentrator is installed in a carrier's central office. The two are connected by existing twisted-pair phone cable. The process may take only a day, compared with waiting weeks for a carrier to install a T1 line.

William Lazarus, director of telecommunications at Horizon/CMS Healthcare Corp. in Albuquerque, N.M., said he has ordered T1 service several times from several carriers in the past two years. In nearly every case, he said, he had to wait twice as long as the promised time for service. Given the quick deployment of SDSL, he said, "it would be something to look at."

Louis Steinberg, president of NetOps Corp. in Pleasantville, N.Y., said he is desperate to find an alternative to ordering T1 service when his company grows because it took six months to have a T1 line installed the last time.

Steinberg said he would consider using cable modems for faster speeds, if they were available. Cable modems won't have as much growth among businesses as DSL, partly because office parks often aren't wired for cable, McElgunn said. □

Wireless LANs gain ground

CONTINUED FROM PAGE 41

two offices — Los Angeles and New York. Ken Freedlund, a strategic analyst at the company, said it chose wireless over installing wiring to accommodate the remote sales force because the service is faster than a land-based connection and, in the long run, cheaper because the antennas can be simply moved and disassembled when their lease arrangements change.

Ericsson, IBM, Intel, Nokia and Toshiba have announced a specification for a new wireless LAN technology, code-named Blue Tooth, that promises interoperability among wireless devices.

"We didn't have to hire a contractor to come in and install wires, and we know both offices will move. We will regain our costs by not having to permanently wire two offices," he said.

Freedlund, who chose Sunnyvale, Calif.-based RadioLAN's wireless system, said its per-office costs included $1,000 for a wireless backbone link, $450 for the laptop modem and $250 for the antenna.

Analysts said the wireless LAN industry is shifting from proprietary, expensive, low-bandwidth solutions to standards-based services that offer more than 5M bit/sec. speeds.

To date, wireless LANs have typically been limited to health care, manufacturing and warehousing environments, where they cost less than installing wires and wire-free access to up-to-date information is crucial.

For other networking applications in corporations, wireless LAN adoption has been limited in part due to the high cost and interoperability issues.

But the recent announcement of new products and services that comply with the IEEE 802.11 interoperability standard, along with improved technology, should help reduce these problems and spark competition among some niche wireless players, said Roberta Wiggins, an analyst at Boston-based The Yankee Group.

The Yankee Group estimates the wireless LAN market will reach $1 billion in revenue by 2000 from $724 million in 1998.

Century Steel Corp. in Chicago Heights, Ill., plans to expand its wireless LAN soon. That will allow one person in the packing/shipping department to do the job of four people.

Century has invested about $30,000 in a Cabletron Systems, Inc. RoamAbout wireless LAN system for the warehouse, where steel workers access product order information from the office manager via dumb terminals on the shop floor.

The system is flexible and dependable, said Gene Kijanowski, the company's data processing manager. "It's [also] a lot cheaper than installing the wiring," he said. □

STUDY IN CONTRASTS

	RadioLan's Campus Link	T1 installation
Installation cost	$100	$500 to $1,000
Installation time	2 hours	1 to 2 months
Performance	10M byte/sec.	1.5M byte/sec.
Initial cost	$6,100	About $1,500
Recurring costs	None	$100 to $800 per month

MORE ONLINE

For resource links on Tivoli, visit Computerworld online.
www.computerworld.com/more

NEW PRODUCTS

FORE SYSTEMS, INC. recently announced the ES-2810, a 10/100M bit/sec. Ethernet switch.

According to the Warrendale, Pa., vendor, the switch comes standard with 24 ports of 10/100M bit/sec. autosensing Ethernet and two expansion slots for additional 10/100BaseTX or 100-BaseFX ports.

It costs $3,695.

Fore Systems
(724) 742-4444
www.fore.com

WATCHGUARD TECHNOLOGIES, INC. has announced Firebox II, a network-attachable security appliance for companies that have extended networks or branch offices.

According to the Seattle company, the hardware and software system automates remote network configuration and policy updates.

It offers firewall protection, encryption and an IP Security-compliant virtual private network.

The price for the box and software for firewall authentication, remote user virtual private network and security management is $4,995.

WatchGuard Technologies
(206) 521-8340
www.watchguard.com

DESKTALK SYSTEMS, INC. has announced Trend 3.5 with World Wide Web-based ReportPacks, software for reporting on network performance.

According to the Torrance, Calif., vendor, the software collects Simple Network Management Protocol and Remote Monitoring data and helps network managers analyze network trends.

Pricing starts at $29,950 for a complete Trend 3.5 package.

DeskTalk Systems
(310) 323-5998
www.desktalk.com

Software

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Briefs

Duke gets PeopleSoft

Duke Energy Corp., a utility company in Charlotte, N.C., is installing data management tools from Houston-based PSDC Software Inc. as part of a multibillion-dollar rollout of PeopleSoft, Inc.'s financial and human resources applications.

Duke Energy went live with the first PeopleSoft application last December and plans to turn the software across the company by year's end (CW, May 25).

Sterling expands

Software Technologies Corp., a small maker of application and database integration software, has added Oracle Corp. President Ray Lane and PeopleSoft, Inc. Senior Vice President Aneel Bhusri to its board of directors. The Mountain View, Calif., company also said it has raised $10 million in new venture-capital funding.

Antivirus products

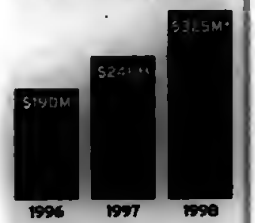
[illegible] inked an alliance to [illegible] a family of [illegible] products to be marketed under the Norton AntiVirus brand name.

Symantec, in Cupertino, Calif., will license IBM's [illegible] system technology and promote and combine it with its own technology to produce a range of products, including new products to support IBM platforms.

IBM also assigned its anti-virus customers and reseller contracts to Symantec.

ON THE RISE

Worldwide document management software revenue



* Projected

Source: The Delphi Group, Inc., Boston

Users eye standard for supply chain

By Craig Stedman
NEW ORLEANS

MANUFACTURERS LOOKING to improve the way they buy supplies and distribute products came here last month to size up a technology-driven blueprint put together by the Supply-Chain Council. The verdict for many: too early to tell.

Business managers who attended the council's spring conference said its efforts to come up with a common language for supply-chain management are right on target.

But many said they still are trying to get a handle on the group's guidelines for mapping out supply chains, evaluating them and finding software that can automate the whole process.

"This is some new thinking, and everyone is looking for a framework for how to improve the way we do business," said Jay Nearnberg, director of global demand management at Warner-Lambert Co. in Morris Plains, N.J., an $8.2 billion maker of pharmaceuticals and candy.

But Nearnberg said he isn't sure whether the council's guidelines can help his unit at Warner-Lambert, which supports retailers and wholesalers that sell the company's products. "What's not real clear is how to apply the model," he said. "That seems to be a

Supply-chain, page 44

KEEPING "SCOR"

Supply-Chain Council facts and figures:

Founded: Last June
Current membership: 320 users, vendors and consultants
Headquarters: Pittsburgh
Web site: www.supply-chain.org
Status of SCOR model: Developed last year; next revision due by August
Uses: Mapping supply chains, benchmarking business performance and evaluating software vendors

Windows 98's strengths put it in the hot seat

NEW INTERFACE MAY COST USERS PRODUCTIVITY AND TRAINING TIME

By Sharon Gaudin

IF THE COURTS follow through on one option in the U.S. Department of Justice's antitrust suit against Microsoft Corp. and change the look of the Windows 98 interface, some users see retraining costs and slower productivity in their future.

Some people are worried a judge could rule that Microsoft has to change the Internet Explorer 4.0 browser-based Windows 98 interface to keep the software vendor from using its Windows monopoly to force its other software on consumers.

If the interface change is dramatic, users may be leafing through how-to books again, which will cost companies real dollars for retraining and

Windows, page 44

ISAAC/Troop

Econometric's Brian McGuire: Users are adjusting to the learning curve with new systems

BROWSER IS KEY TO COMPONENTS, REVIEWER SAYS

By Chris DeVoney

IN A FIAST LOOK at the newly released successor to Windows 95, I found Microsoft Corp.'s Windows 98 to be less cantankerous and more calamity-resistant than Windows 95.

But many of the advantages in Windows 98 are already available to people using Windows 95 with Internet Explorer. Windows 98 seems destined to be a companion for new machines rather than a compelling upgrade for corporate desktops.

As everyone probably knows by now, Windows 98 was designed to use Internet technology to a much greater degree than previous versions of the operating system. Microsoft has woven Internet browser functionality tightly into the desktop, help system and some utilities, such as the Configuration Manager. Those components won't work properly with a third-party browser, which will be a problem if a federal judge forces Microsoft to jettison Internet Explorer.

For example, the Windows Update utility that checks your system and then visits the Microsoft World Wide Web site for more recent drivers and system

Browser, page 44

PRODUCT REVIEW

▶ *Windows 98*
(OEM release)

MICROSOFT CORP.
Redmond, Wash.
(800) 426-9400
www.microsoft.com

Pros: Improved support for Universal Serial Bus; more robust; self-diagnosing capabilities; faster program loading; and better responsiveness

Cons: Web-centric desktop can be inappropriate for some client/server uses; hardware such as DVD not widely available

IBM extends usage-based pricing to S/390

By Jaikumar Vijayan

IBM HAS SWEETENED the recent launch of its S/390 G5-class of mainframe systems by reducing software license charges. The company also has announced plans to extend usage-based pricing schemes to more system software, middleware and applications that run on the S/390 platform.

The capacity of the G5 series, announced last month, is 120 MIPS per processor, nearly double that of IBM's older S/390 machines. The latest moves are part of IBM's broader bid to simplify software pricing and align it more closely to actual software use.

Most software on the S/390 machines is priced according to the size of the system on which it runs rather than software use. That penalizes users who don't use their applications much but run them on large mainframe systems.

MORE OPTIONS

Since 1994, IBM has had an option called Measured Usage Licensing Charge that lets users pay according to usage — but

IBM's pricing, page 44

Supply-chain standard

CONTINUED FROM PAGE 43

closely held secret."

Interest in what the Supply-Chain Council has to offer is high. About 320 companies have joined the group of manufacturers, software vendors and consultants since it was formed last June and made its blueprint available to members.

JUST THE BEGINNING

But even council officials acknowledged that the group's Supply-Chain Operations Reference (SCOR) model is in the early stages of development and implementation.

"As we go forward, we have to answer the question of how to use this tool and what it really means in supply-chain planning," said Vinay Asgekar, the council's chairman and a manager of business process reengineering at Rockwell International Corp.'s semiconductor unit in Newport Beach, Calif.

The council took over SCOR from a pair of consulting firms that initially developed it with input from 70 manufacturing companies.

However, one of the consultancies — Pittiglio Rabin Todd & McGrath in Weston, Mass. — still owns a set of benchmarks that companies have to buy to compare themselves with other manufacturers.

Avenor, Inc., a Montreal-based maker of newsprint and other wood pulp products, began a supply-chain initiative last fall to get suppliers and some customers to work jointly to cut inventories, transportation costs and other expenses.

Karl Roberts, vice president of supply-chain management at Avenor, came to the New Orleans conference to check out the SCOR guidelines.

Roberts said they seem to be oriented to consumer packaged goods companies. "I'm not sure it really fits my business."

Greg Girard, an analyst at Advanced Manufacturing Research, Inc. in Boston and a member of the Supply-Chain Council's board, said the number of companies now using the blueprint "is in the scores, not the hundreds." The council still is trying to get supply-chain software vendors to commit to support SCOR in their products, he added.

NOT EASY

Using SCOR isn't a piece of cake, said Joe Williams, director of global productivity at Mead Johnson Nutritionals, a $1.9 billion division of Bristol-Myers Squibb Co. that makes infant formula.

The SCOR model is playing a big role in helping the Evansville, Ind., unit measure its supply-chain performance against other companies, Williams said. But getting those measurements "is a big job," he added. "SCOR is definitive in some respects and open to interpretation in others." □

IBM's pricing strategy

CONTINUED FROM PAGE 43

only for applications that run with IBM's DB2, CICS, IMS and MQSeries products.

IBM will offer similar options for applications such as Lotus Development Corp.'s Domino and resource planning software from SAP AG, The Baan Co. and PeopleSoft, Inc., said Doug Balog, a program director at IBM's OS/390 group. Usage-based options could become available for those products early next year.

PRICE CUTS

Effective July 1, IBM will reduce measured usage prices by 10%. It also will give measured usage customers whose workloads exceed 1,000 MIPS a 25% software discount on additions to their workloads, Balog said. The new schemes "certainly make me want to take a look at it," said Joel Markus, vice president of technology at UMB Bank N.A. in Kansas City, Mo.

"The last time we looked at usage-based pricing, it was not much better than [system-based] pricing" because of the workload running on the mainframe, Markus said. But the recent price cuts and IBM's attempts to extend usage-based pricing could lead to a review of that decision, he said. □

S/390 SOFTWARE PRICING SCHEMES

Usage-based pricing	Capacity-based pricing
How it works: Charges based on system resources used	**How it works:** Charges based on capacity of system on which software runs
Available on: IBM's CICS, DB2, IMS and MQSeries systems	**Applies to:** Virtually all third-party application software on the S/390

Windows 98's interface

CONTINUED FROM PAGE 43

lost productivity.

"People don't like to relearn things," said Kim Orumchian, head of IS at Computer Literacy, an online high-tech bookstore in Sunnyvale, Calif. "Remember all the books out there to help move people from Windows 3.1 to 95? [A similar transition] could be very counterproductive."

Companies already will have to absorb the cost of training users to use the Windows 98 interface or to set up PCs to use the Windows 95 interface.

But "for us to retrain all of our employees on how to use a new version of Windows would be a big pain and a big waste of our money, too," Orumchian added. "I'd like to train our people on things that would be of value to our business and not just how to use Windows all over again."

Dan Kusnetzky, an analyst at International Data Corp. in Framingham, Mass., said the government may be trying to help consumers, but it could wind up confusing them in the process.

"For a person who is not a computer professional but a professional doing something else, it could be enormously confusing," he said. "If they know by rote that they do this, then this, and their job is done, there's going to be confusion. Any time you change the user interface, it will make it difficult for people to continue to be productive."

The case hasn't gone before a judge, so what might change is speculation. But that speculation is enough to get users prepared for yet another transition.

"I think people are getting more used to always having a learning curve," said Brian McGuire, director of Internet administration at Econometrics, Inc., a marketing company in Chicago.

"Microsoft will make it so even if [Windows 98] changes, people can turn it on and get started. And they'll go from there." □

Windows 98 highlights

NEW FUNCTIONALITY:

- Support for TV tuner cards, FireWire (IEEE 1394) devices, MMX instructions and DVD-ROM drives
- Support for multiple monitors
- Revamped diagnostic and repair utilities
- Revamped boot-up and shutdown code to speed start-up and shutdown
- A new scripting engine that incorporates JavaScript and VisualBasic Script
- Power management for PC cards

TECHNOLOGY ADDED TO WINDOWS 98 FROM WINDOWS 95 RELEASE 2 AND OTHER TECHNOLOGIES:

- Support for Universal Serial Bus (improved version in Windows 98)
- Default interface is now Internet Explorer 4
- FAT32 file system increases storage capacity

OTHER TECHNOLOGIES:

- Remote Access Server dial-up server
- ActiveSync for linking Windows CE devices
- NetShow, NetMeeting conferencing software
- Outlook Express messaging software

— Galen Gruman

Browser

CONTINUED FROM PAGE 43

files fails without the built-in browser.

As for the interface, those comfortable with the look and feel of the Windows 95 user interface may find the new one visually unappealing and awkward.

Windows 98 presents your applications (the Program option available from the Start button) in a single, scrollable panel no matter how many programs you have. Picking a program is easier in Windows 95, which presents the list in a series of pop-up panels across the screen.

IMPROVEMENTS

Windows 98 does provide a better foundation than Windows 95 for innovations such as the Universal Serial Bus, Digital Video/Versatile Driver and PC use of Asynchronous Transfer Mode communications.

In general, improvements to Windows 98 come from the use of the 32-bit device driver model used by Windows NT. A rewritten version of the TCP/IP communication stack improves responsiveness and increases throughput. For example, in Windows 98, the Internet Explorer doesn't bring the system to its knees while waiting for a Web site response as it did in Windows 95.

HEALING POWER

Windows 98 beefs up tools used to heal most common problems and provides better information for remotely diagnosing and solving problems.

For example, the System File Checker restores corrupted Windows 98 system files, and the System Information tool presents a one-stop applet for reporting the computer's inner workings and running the various diagnostic programs, such as the Windows Dr. Watson.

In comparing the operating systems, we installed both Windows 95 and 98 on a NEC Computer Systems Division Enterprise PowerMate and a Gateway E-3300 desktop, both running 333-MHz Pentium IIs.

It took about 35 minutes to install Windows 98 on top of the Windows 95 setup. Windows 98 added an average of 60M bytes and nearly 2,000 files during install. □

DeVoney is a syndicated columnist in Seattle. His E-mail address is chrisd@cybercritic.com.

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Servers & PCs

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Briefs

This monitor is slim

Sony Corp.-Calif.-based Sony Electronics, Inc., a maker of compact computer monitors, has announced a 15-in. flat-panel LCD. The Multiscan CPD-L150 monitor is for environments with limited desktop space. It is 6.5 in. high and weighs 11.7 pounds. Estimated pricing is $2,000, and the monitor will ship this month.

Notebook price cuts

Toshiba has again reduced the price of its Libretto subnotebook. The computer was first introduced at a price of $1,999. It was then reduced to about $1,200 and most recently was priced to $699. The 75-MHz Pentium machine weighs less than 2 pounds and features 16MB bytes of memory.

HP in patent dispute

Micro Solutions, Inc. in DeKalb, Ill., has filed a lawsuit alleging that Hewlett-Packard Co.'s CD-Writer Plus 7200E external CD-Rewriter infringes on the company's patented "parallel port interface mass-storage technology." A previous lawsuit against four vendors over the same patent was settled out of court with the defendants forced to cease shipment of infringing products.

Telecommuting predictions

- By 2000, more than 66% of companies will have to upgrade their application infrastructure to support telecommuting
- Through 2002, 80% of telecommuting projects won't provide measurable benefits to the company
- By 2003, 50% of all telecommuting in the U.S. will be driven by the threat of financial penalties under pollution control legislation

Source: Gartner Group, Inc., Stamford, Conn.

No traffic jams here

▸ *Higher intranet use prompts chain to distribute server requests*

By Bob Wallace

OFFICE-SUPPLY store chain Staples, Inc. did a little shopping of its own for software that would keep its intranet servers up and running. And by installing software that balances users' requests for information among the intranet's servers, the company was even a bit ahead of its time.

Most companies wait until performance declines and complaints increase before implementing load-balancing technology, said Daniel Briere, president of TeleChoice, Inc., a Verona, N.J., consultancy.

"Adding load balancing early on helps prevent problems. Managers need to be proactive to avert calamity," he said.

Staples bought a load-balancing package to ensure reliable service after intranet use skyrocketed in the site's first seven months.

"We went from 30,000 hits per month in September [1997] to 200,000 hits per month in March," said James Ray, vice president of corporate systems and strategy development at Framingham, Mass.-based Staples. "We needed to ensure that traffic spikes didn't degrade service to our end users."

As of March, 97.8% of the company's 1,950 employees at headquarters had accessed the Staples intranet, Ray said. And 143 of 250 remote workers had used it.

Load-balancing software takes calls sent to a data center, in-

No traffic jams, page 48

STELLA JOHNSON

Staples' James Ray: Load-balancing technology helped the office-supply chain control traffic to its intranet and maintain service levels

Bus links peripherals without rebooting

By April Jacobs

USERS SAY Universal Serial Bus technology, which is aimed at making peripherals easier to configure and connect to desktop computers, may be another step forward for the Plug and Play standard.

Universal Serial Bus (USB) will be supported by Microsoft Corp.'s Windows 98, which is due out June 25. It will also be supported by an array of hardware vendors this summer, including the top desktop vendors.

Windows 95 Service Release 2.0 shipped with USB software, and Apple Computer, Inc. is adding USB support to its new consumer IMac line in August.

Users who have a scanner that is USB-compliant and running Windows 98 could plug the device in to their computer's USB port and the operating system would install the correct driver without having to restart the machine.

The peripherals supported by USB include keyboards, mice, digital cameras, scanners, videoconferencing cameras, speakers and printers.

USB supports multiple devices on one network chain and powers the attached devices

SIMPLER PROCESS

USB is similar to the faster SCSI because it supports multiple devices on one network chain. And it is similar to the Macintosh's slower Apple Desktop Bus because it powers the attached devices.

"USB is going to make peripherals much easier to set up, and if you're talking about a company with hundreds or thousands of PCs, even one less conflict to resolve is a good thing," said Rob Enderle, an analyst at Giga Information Group, Inc., in Cambridge, Mass.

But like most new technologies, USB isn't likely to be widely adopted at a quick pace because users still have investments in peripherals that are supported by older bus technologies. Those include the serial buses commonly used for input devices and SCSI buses used for scanners and external drives.

Users say they like the idea of

Bus links, page 48

REMOVABLE STORAGE

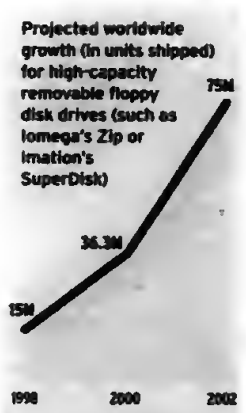
Tools may help users find data on disks

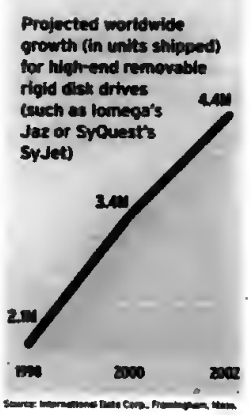
By Nancy Dillon

WHEN CHRYSLER CORP. engineers need more 100M-byte Zip disks to record test data, they simply fill out the same request form they use to order pencils.

This liberal acquisition policy helps simplify Dave Mabry's job of supporting more than 250 Zip drives used in test equipment. But it doesn't contribute to his control over data management. Mabry is a senior product engineer at the Auburn Hills, Mich., car maker, and be

Tools, page 48





Source: International Data Corp., Framingham, Mass.

Tools may help users find data

CONTINUED FROM PAGE 47

is nostalgic for the days when he could use a DOS utility to manage 1.44M-byte floppies.

"We still haven't come up with a similar way to catalog our Zip disks," Mabry said. That may soon pose a problem because even though his users have evolved from 1.44M-byte floppies to 100M-byte Zip disks, they use more sophisticated test equipment and acquire between 10 and 100 times more data. That means the amount of media isn't decreasing as capacity increases.

Adopting a removable-media indexing tool is a "no-brainer."
– Frank Schwartz, Chiquita Brands International

Mabry is just the type of user Sheridan Software Systems, Inc. is targeting with next week's release of DiskCataloger.

According to the Melville, N.Y., software vendor, the $49.95 tool will help users manage their growing collections of removable media. Its cataloging system integrates with the Windows Explorer tree structure, and it lets users view and search virtual representations of cataloged disks using standard Explorer protocol. Once it locates requested files, the software prompts the user to insert the proper disk.

A sampling of supported media includes Zip disks from Roy, Utah-based Iomega Corp.; 120M-byte SuperDisks (also called LS-120 disks) from Oakdale, Minn.-based Imation Enterprises Corp.; 230M-byte EZFlyer disks from Fremont, Calif.-based SyQuest Technology, Inc., and standard CDs and floppies.

Citadel Technology, Inc. in Dallas has a similar disk cataloging product called C:/More. But the $79.95 C:/More doesn't integrate directly with Windows Explorer.

As high-capacity removable storage goes mainstream, analysts say media-management tools will grow in importance (see chart on page 47).

"The usage model for high-capacity removable storage is changing," said Bob Amatruda, an analyst at International Data Corp. in Framingham, Mass. He said users are becoming more educated about the importance of backup. And because removable storage such as Zip disks are already common on the desktop, their repurposing for backup is leading to increased media consumption.

Adopting a removable-media indexing tool is a "no-brainer," said Frank Schwartz, vice president of Information Services at Chiquita Brands International, Inc. in Cincinnati. He said that without a powerful indexing tool, his users often find themselves inserting disk after disk to locate missing files.

"Whether you have just two disks or over 20, an index would save time," he said.

But Schwartz said the one problem with cataloging software is that it is useless if users don't know how to properly label the outside of their disk cartridges. □

Snapshot

WHERE THEY STAND

Top 3 PC server vendors worldwide (first half, 1997)

Rank	Vendor	Market share
1	Compaq Corp.	29.9%
2	Hewlett-Packard Co.	13.2%
3	IBM	12.3%

Top 3 disk storage subsystem vendors worldwide (1997)

Rank	Vendor	Market share
1	IBM	15.7%
2	Compaq	11.7%
3	EMC Corp.	10.2%

Source: International Data Corp., Framingham, Mass.

Bus links peripherals without rebooting

CONTINUED FROM PAGE 47

a universal plug. But they aren't too excited by the idea that there may not be enough devices to support the new technology.

"We have PCs with USB support but no devices yet," said Matthew Merrick, vice president of information and technology at Merrick Printing Co. in Louisville, Ky. Still, "as [vendors] develop high-speed printers and scanners to go along with it, it will be helpful," he said.

Others question if information systems managers will want users to be able to easily connect such a wide range of devices to their PCs. Those managers fear that a support issue may arise.

"From an end-user standpoint, the features sound good. But from an IT standpoint, they might not want people installing all kinds of objects from the desktop," said John Delta, director of the advanced technology group at Nasdaq Stock Market in Washington.

PCs have long had plenty of ports to which users could add hardware. But USB allows many devices to be linked to one port.

Plus, Windows 98 can autoconfigure a wide range of USB devices, which makes peripheral installation easier than in previous versions of Windows. □

GET ON THE BUS

Universal Serial Bus (USB) features the following:

- **A standard connector type**
- **Plug and Play support so the host computer can identify USB devices when they are plugged in and can provide the correct driver without rebooting**
- **Four different transfer types to support various peripherals**

No traffic jams

CONTINUED FROM PAGE 47

tranet or web server and balances them among servers to boost performance and prevent any one server from being overtaxed.

It can redirect calls from a server that is busy or down to one that's operational, regardless of where the server is.

And by maximizing the efficiency of existing servers, load balancing technology can delay or eliminate the need to buy more servers.

"Load balancing is a technology that every company that's building an intranet or Web site should evaluate as part of the project," Briere said. "It can mean the difference between smooth operation and hordes of angry users and customers."

Staples bought Windows NT server-based load-balancing software from Bright Tiger Technologies, Inc., a start-up in Acton, Mass., to give employees optimal access to such intranet staples as the company phone book, conference room scheduler and human resources data, Ray said.

"If one of your servers goes down, it can bring your business to a screeching halt," he said. "It'd be like losing your phone or your LAN."

The company plans to install intranet servers in Canada, the U.K. and Germany by year's end.

The Bright Tiger package will allow calls to be routed to the nearest server, which will reduce international wide-area network bandwidth charges. □

NEW PRODUCTS

HEWLETT-PACKARD CO. has announced HP SureStore magneto-optical jukeboxes with disks that can store 5.2G bytes each.

According to the Palo Alto, Calif., company, the jukeboxes use 5.25-in. disks and range in capacity from 80G to 1.2T bytes. They offer read/write capability on the new 5.2G-byte and older 2.6G-byte disks, and read-only capability on legacy 1.3G-byte and 650M-byte disks.

The systems were designed for document and image management, computer output to laser disk, archival data storage and data migration.

Pricing ranges from $3,894 to $101,894.

Hewlett-Packard
(650) 857-1501
www.hp.com

CHEM USA CORP. has announced the ChemBook 6000II Series, a line of notebook computers with 233- or 266-MHz Pentium II processors from Intel Corp.

According to the Newark, Calif., company, the notebooks feature between 32M and 144M bytes of 64-bit memory and have a 128-bit graphics accelerator with 2M bytes of video RAM. The base model uses a 2.1G-byte hard drive, but 3G- or 4G-byte hard drives also are available. Other options include a removable 20-speed CD-ROM drive, a magneto-optical drive or a Zip drive from Iomega Corp.

Pricing starts at $3,049.

Chem USA
(510) 608-8818
www.chemusa.com

MICROSOFT CORP. has announced the IntelliMouse Pro, a pointing device that acts as a full-featured Microsoft Mouse.

According to the company, the device's shape helps keep the hand and forearm aligned in a natural position. It uses a wheel between its two buttons for scrolling. Included software can customize scrolling in any Windows 95, Windows 98 or Windows NT 4.0 applications. A data zooming feature will let users collapse or expand outlines created with Microsoft Word or PowerPoint.

It costs $74.95.

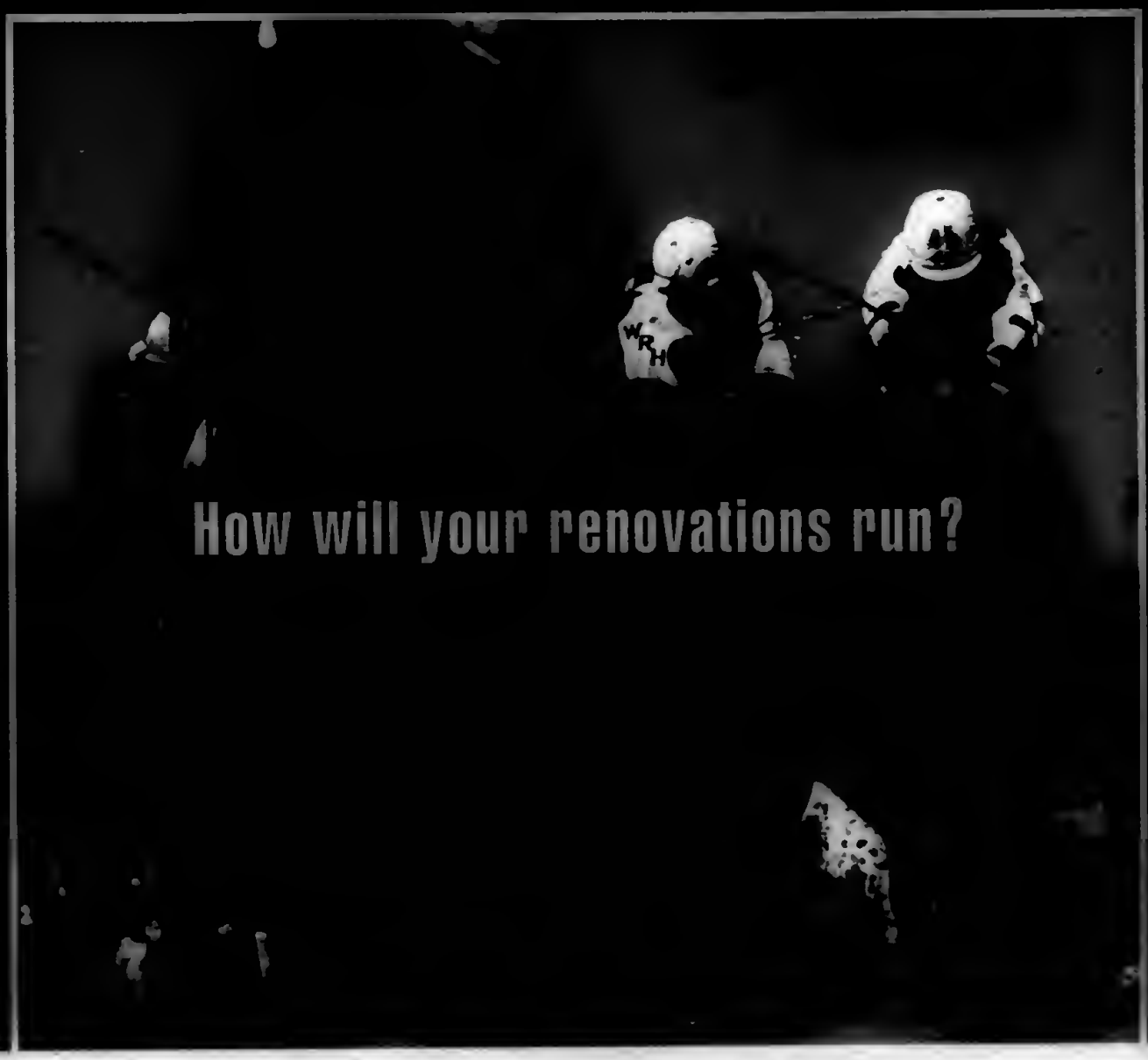
Microsoft
(425) 882-8080
www.microsoft.com

NSM JUKEBOX has announced the Mercury 22, a CD jukebox with many concurrent read/write drives.

According to the Bensenville, Ill., firm, the jukebox lets users record 150 CDs in less than 24 hours. It includes two 12-speed read drives and two 12-speed/4-speed read/write drives, so users can initiate disk mastering while maintaining multiuser access to all disks in the jukebox.

Pricing starts at $16,500.

NSM Jukebox
(630) 860-5100
www.nsmjukebox.com



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Briefs

SAP R/3 warehouse

Informix Software, Inc. in Sunnyvale, Calif., has announced a prepackaged data warehouse designed for SAP AG's R/3 and the manufacturing industry. Informix Knowledge Warehouse for SAP is a World Wide Web-based analysis tool that allows users to slice and dice data locked in R/3. It is scheduled to be released in the third quarter. Pricing will vary based on the number of users and applications used.

Java-based analysis

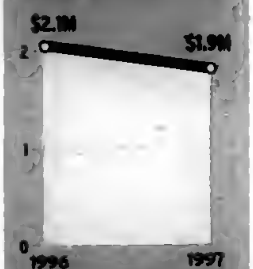
Spitbe Technologies, Inc. in Menlo Park, Calif., has unveiled Version 2.0 of PowerSpitbe. It is a Java-based tool for online analytical processing. PowerSpitbe 2.0 comes in three versions: Workgroup Edition, Enterprise Edition and Unplugged Edition for stand-alone queries. It is scheduled to ship by the end of this month. It costs $99 per user.

Visual programming

Red Brick Systems, Inc. has begun customer beta-testing of Red Brick Formation, a visual programming tool that helps create data-transformation applications. The tool will reduce the need for hand-coding, the company said. It should ship by October. Pricing hasn't been set.

GOING DOWN

Average spending per data warehouse, excluding staff salaries



Note: Major cost decreases were in consulting (down 10%), hardware (down 9%) and software (down 6%)

Base: Survey of 1,268 projects in 1996 and 915 in 1997

Source: META Group, Inc., Stamford, Conn.

JOHN KELLY/IDG

AMP's Danny Wall says a redesign will enable users to access more information faster

▸ *Recognizing life cycle patterns can help*

By Leslie Goff

DATA WAREHOUSES are like self-perpetuating organisms: They create user demand for more queries and information or cry out for a redesign. Or suddenly a company is faced with a whole new set of data sources or business requirements because it forges a new partnership, acquires another company, sells a unit, faces new regulations or is deregulated.

A data warehouse's life cycle advances from one stage to the next: from project planning to design and development to deployment to maintenance. Although the stages are known in advance, they must be managed based on the specifics of each project and business need.

Green Spring Health Services, Inc. in Columbia, Md., for example, is taking a break before launching the fourth iteration of its data warehouse so it can evaluate how to bring two companies into the fold.

The mental health services and chemical dependency treatment provider so far has deployed data and applications for membership, benefits authorization and claims processing and is set to begin an iteration to manage its provider network.

Adding the two companies will increase Green Spring's nationwide membership from 16 million to 60 million and boost the data warehouse from 350G bytes to well over a terabyte of data, said John Herman, director of data warehousing.

"Now we'll have a whole new set of data sources, codes and databases that will have to be standardized in our data warehouse," he explained.

Herman views the challenge as an opportunity for a reality

Change, page 54

COMMENTARY

Nailing down user requirements

SHAKU ATRE

This is the first in a series on how to build a data warehouse/mart.

A CEO hadn't yet signed off on his IT staff's data warehousing proposal when he overheard a competitor raving about the advanced scenario-based forecasting she was doing with hers.

Yet the CEO signed off on the existing proposal without meeting with his IT staff to discuss what he had heard. So ultimately, the CEO didn't get what he wanted (even though, in this case, that functionality should have been in the proposal to begin with if the group was knowledgeable about the industry).

Such is often the case when expectations aren't managed. If you haven't had to manage expectations, you've undoubtedly heard that it is one of the biggest challenges of data warehousing projects.

To find out what users want, I recommend a combination of interviews and questionnaires. You should always plan to ask users about their current system, the system they'd like and how they use the data they get today. (If this sounds a lot like what you'd do

User requirements, page 54

Data mart improves GTE Airfone's marketing

By Randy Weston

BAD WEATHER spurs a flurry of in-flight telephone calls from one-time or occasional callers, but the people who make up the bread and butter of GTE Airfone, Inc.'s business are travelers in business and first class heading cross-country or between continents.

That's just some of the information GTE Airfone in Oak Brook, Ill., is uncovering with its new data mart. GTE is using the system to better target its customers and improve service. The analysis is based on the credit-card information gathered when customers place calls.

"In the past, we implemented new marketing promotions that weren't very well targeted, and [so] we didn't get much payback," said Shekar Vengarai, senior advisory systems engineer at GTE Airfone. "The air traveler requires specialized marketing programs, and to achieve success, we need access to accurate, timely data."

About 100G bytes of data about customers now rests in the data mart, which was built on Redwood Shores, Calif.-based Oracle Corp.'s Oracle7.3 database with the help of consulting firm Metamor Technologies Ltd. in Chicago. The effort began last June, and the data mart went live in January.

The data, which has only the customers' credit-card numbers, is pulled from GTE's billing system by using Palo Alto, Calif.-based Informatica Corp.'s PowerMart extraction tool.

Ed Schaider, an analyst at The Standish Group International, Inc. in Dennis, Mass., warned that users shouldn't cut corners when picking the right tools for the job. He said users shouldn't be swayed by building a quick and cheap warehouse to lessen the risk because that is likely to backfire. The best course of action is to shop around and make sure the tools bought will meet the needs of users.

Among the added tools GTE Airfone buys are third-party credit-card user profiles, which

GTE data mart, page 54

.WORK THE
WEB.

LOvE AND DEAtH in Akron, Ohio.

The pharmaceutical sales rep is dead. Exhausted. Dog meat. Lying on the bed, he thinks about his day. His flight was delayed two hours. He went into the club lounge and connected to [1](the company intranet to review shipping status on pending inventory) via the Web. He [2](e-mailed) his customers to inform them their deliveries would arrive early. He lugged his carry-on to the gate. He wedged himself into a coach seat. He arrived at his sales call just in time, only to find his client was running an hour late. He tweaked his presentation, checking his competitors' Web sites, and [3](incorporated key points into his pitch). He made the presentation. He went to the hotel and the smiling clerk gave him a smoking room with twin beds instead of the non-smoking king he had reserved. He turned on a rerun of *Love, American Style*. He connected to the [4](contact management system), updated his customer file and sent a call report to the global sales team. He connected to the company benefits intranet and [5](calculated the balance in his 401k plan). It was up 4.5%. He falls asleep and sleeps soundly until his next wake-up call. At 5:30 a.m.

THE [6](BEST PARTS) OF HIS DAY WERE MADE POSSIBLE BY LOTUS.

[1]Lotus Domino™ Web Application Server with IBM DB2® UDB back-end. [2]Lotus Notes® mobile messaging. [3]Notes replication. [4]Domino-based Contact Management application developed by Lotus Business Partner. [5]Lotus eSuite™ spreadsheet applet. [6]www.lotus.com/workthewab.

Lotus

An IBM Company

User requirements

CONTINUED FROM PAGE 51

for any project, you're right.)

Here are some specific questions to ask.

■ **About the current system:** Ask users what percent of the questions they ask today yield satisfactory answers. Do they trust the accuracy of the answers? How quickly does the system respond? Have users provide a list of a few questions the current system can't answer fast enough — or at all. Find out who uses the information the system generates and how decisions are made when the system can't give them what they need.

If you take the time to understand your industry, user needs, frustrations and dreams, you'll increase your project's chances for success.

■ **About the ideal system:** Ask interviewees to jot down five questions, in order of importance, that they need answered in order to perform their jobs. Find out how often they need to ask them and if they're basically the same questions each time or if they vary.

Then ask the users to describe the business benefits of a system that could answer all the questions on their list: Would revenue grow? Profitability? Savings? Customer satisfaction? Market share? Would time-to-profits be reduced? Would the organization reduce cases in which work is redone?

■ **Drill down on the data:** Ask users what data they access today and who owns that data. Find out what they think of the quality and consistency of the data and how up-to-date it is. Find out if they like the way the data is grouped or if they'd like to see it a different way. Ask them if the current system "floods" them with data and if anything could be filtered out.

Compile all that information and reply to individual users or user groups with a realistic assessment of what's feasible. Suggest desired features and then include prices and realistic time frames for what users want. Then they can decide how to proceed and whether they should pare back or expand what they're looking for.

You also need to understand what upper management needs. Have those managers list their competitors — on a product-by-product or regional basis — and their perceptions of their competitors' market dynamics and how they get information about the competition. Be a good listener and start managing expectations with reality checks. Reinforce this expectation management process with status reports as the project proceeds.

If you take the time to understand your industry, user needs, frustrations and dreams, you'll increase your project's chances for success. □

Atre is president of Atre Associates, Inc., a consulting firm in New York that specializes in data warehousing and database technology. Her E-mail address is shaku@atre.com, and you can access her DataWareMart methodology at www.atre.com.

Change

CONTINUED FROM PAGE 51

check — to see where his team can improve the current design, add fields that it may have missed, fine-tune the SQL-stored procedures to run faster and make other improvements as team members gather and transform all the new data.

Electronics components manufacturer AMP, Inc. in Harrisburg, Pa., consolidated disparate sources of financial data following a long series of mergers and acquisitions, prompting the first version of a data warehouse at the company.

FAST ACCESS

Now AMP is preparing to redesign the 2-year-old warehouse, moving it from a normalized database implementation to a star-schema implementation so users can access more data faster, said Danny Wall, a senior systems analyst at AMP.

"The way things are now, everything is in monthly slices of the pie," Wall said. "It's still labor-intensive if users want quarterly data and they want to look across a year or a quarter without having to look at all the individual monthly slices. The new version will be time-variant."

The star-schema architecture allows those different time slices to be easily created.

Even though Wall isn't creating the warehouse from scratch, he said his team members will still progress through each phase of the life cycle because they will be adding functionality and keeping an eye toward future changes.

"You should still run through all the steps, whether the changes are as simple as adding two columns to an existing table or as complex as remodeling the data," he said.

Sam Kuntz, a senior programmer/analyst at Blue Cross/Blue Shield of Georgia in Atlanta, noted that a three- to four-month iteration of a project typically doesn't experience a lot of changes. But during the course of a year, an industry can change drastically, rendering a data warehouse obsolete if it wasn't designed to be flexible.

"Eight years ago, we were just starting to move from an indemnity insurance model to an HMO model," he said. "If we had built a data warehouse then, it would be almost useless now." □

Goff is a freelance writer in New York.

DATA WAREHOUSING BASICS

Project planning
- Interview users to determine business requirements, and get a consensus among the users and the team leaders
- Ask users and managers the types and volume of queries and reports needed and desired
- Locate data sources
- Identify the return on investment
- Delegate roles and responsibilities for the IS and business departments
- Document everything

Design and development
- Select a data model and begin modeling the data
- Choose or create tools for harvesting, cleansing and transforming the data
- Determine the technical architecture, including hardware platforms, database engine and reporting and analysis tools
- Extract and transform the data
- Gather the meta data
- Install the hardware and software
- Populate the warehouse and meta data stores
- Develop user applications
- Do beta testing with users
- Do quality assurance testing and analysis
- Document everything

Deployment
- Train users
- Set up user support procedures and responsibilities
- Roll out the data warehouse and applications to users
- Document everything

Maintenance
- Establish processes for regular updates of the data
- Respond to user requests for additional functionality
- Consider additional tools, such as for data mining
- Make requisite changes as business needs change
- Get ready to launch the next iteration for another business unit
- Document everything

GTE data mart

CONTINUED FROM PAGE 51

it uses to compare the numbers it gathers with the customer profiles.

From that information, the company can pinpoint which travelers are using the system, their average income, age levels and other useful marketing information.

Once GTE Airfone has the user's name, it can find out if the person is a member of frequent-flier programs and attach special telephone use offers to the mileage packages.

Because GTE Airfone relies on outside data to get customer information, it has to ensure that it first cleanses the data. Many agents who sell credit-card data don't let companies keep individual data, so GTE Airfone's data mart also must handle both data on specific customers and generalized data about groups of customers.

Combing through data and making it compatible "is one of the single reasons data warehouses and data marts end up costing more than planned," said Robert Craig, an analyst at Hurwitz Group, Inc. in Framingham, Mass. "You have to go through the data field by field. If you don't, the data won't work."

Vengarai said that before GTE Airfone built the data mart, the only way to gather much of that information was for programmers to write reports in the billing system, a laborious task that often took three to fourth months to complete. The $1.2 million data mart lets GTE Airfone analysts continually monitor the information.

Craig said that is primarily why users are turning to data marts for decision-support systems. □

Using dirty data

GTE Airfone isn't stopping at using its new data mart simply to find new marketing opportunities. The company also uses the information to monitor the quality of its service.

That is being done by letting dirty data into the system, said Shekar Vangarai, senior advisory systems engineer at GTE Airfone.

The dirty data is from partial records that have incomplete or missing data on airplane identification, phone call duration or credit-card numbers — all of which could indicate phone calls that didn't go through properly. The so-called dirty data is flagged in the billing system and sent on to the data mart, flags and all.

GTE's business analysts then can decide whether to use the information or screen it out when doing queries. Vangarai said the data is used, for example, to see if a particular plane has a high number of incomplete calls, which could signal a problem with the system. — *Randy Weston*

Managing

Global Snapshot

IDC's international IT survey finds spending is up worldwide and U.S. companies aren't rushing to implement Windows NT

By Miryam Williamson

- **This year's rush to a Windows NT network operating system standard, predicted by many industry pundits and marketers, may be more of a leisurely stroll over the next couple of years.**
- **The U.S. is by far the world's biggest spender on information technology; in 1997, IT spending in the U.S. topped $320 billion, eight times the U.K.'s $40 billion and 17 times Italy's $18 billion technology bill.**
- **IS spending is up across Europe and the U.S., with the U.K.'s 12.2% average budget increase outpacing the European total by about 1.5%.**

THOSE ARE SOME of the findings of International Data Corp.'s (IDC) fifth annual global IT spending survey. The study, spanning 13 countries in North America, Europe, Asia and Australia, involved interviews with nearly 12,000 IS managers and directors (about 1,200 in the U.S.). The respondents work at businesses, government agencies and educational institutions with at least 10 employees. (IDC and *Computerworld* are both subsidiaries of Boston-based International Data Group.)

IS decision makers were asked about their companies' 1997 spending on hardware, software and services and their intentions for 1998. The survey was conducted during the last quarter of 1997 and the first two months of this year. "That was right in the midst of the Asia/Pacific economic crisis, yet respondents were telling us they are very optimistic about their projected IT spending in 1998," says Seana Dowling, research manager for the project.

NT: WHAT STAMPEDE?

The survey found companies are moving slowly to Windows NT. Novell, Inc.'s NetWare remains the U.S. market leader for LAN operating systems, at 43.2%, followed by Microsoft Corp.'s NT Server, at 35.2%. Unix-based LANs accounted for 7% of the survey sample.

Only 11% of survey subjects say they plan to change network operating systems this year. And although 68% of those who do plan to switch will choose Windows NT, they represent less than 8% of the 998 respondents.

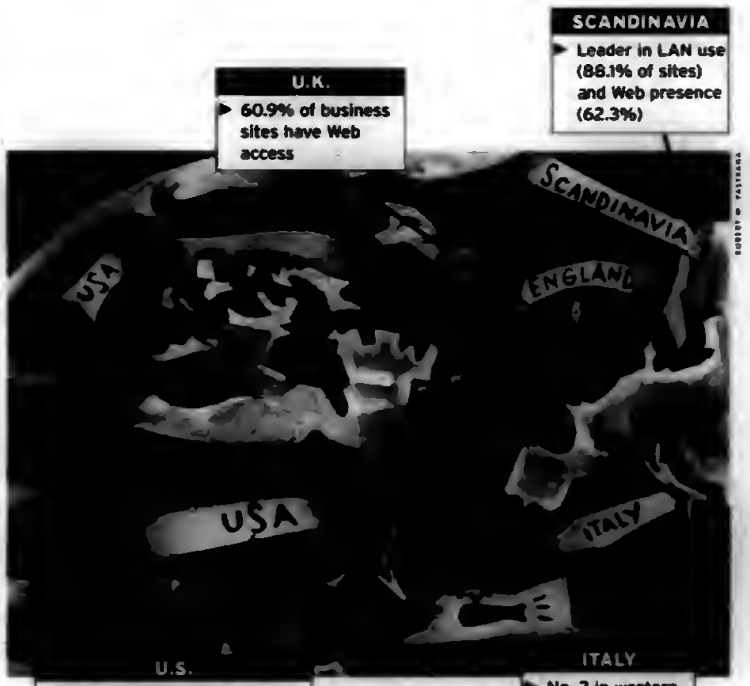
Even for many considering a change to NT, the decision isn't a sure thing. Gene P. Berry, vice president and chief information officer at Shenandoah Life Insurance Co. in Roanoke, Va., is typical. His company uses a mixture of NetWare versions "and a bit of NT. A 1998 project is to make a long-term decision and get to one platform. My sense is that we'll end up on Windows NT across the board by the end of this year," Berry says.

However leisurely it may be, the migration to NT may reflect a desire for some degree of certainty, says John Gilsenan, manager of the survey's U.K. component. People may be willing to trade off a certain amount of robustness in return for "a road map for the future, if only because people believe Microsoft will be around forever," he says. "People may also be thinking no one ever got fired for buying Microsoft. If NT fails, there are enough people using it to mean that it won't just be me that's in trouble."

Global Snapshot, page 56

TOP 10 IN IT SPENDING

1.	U.S.	$320 billion
2.	Japan	$107.52 billion
3.	Germany	$ 50.11 billion
4.	France	$ 38.84 billion
5.	U.K.	$ 38.76 billion
6.	Canada	$ 20.89 billion
7.	Italy	$ 18.26 billion
8.	South Korea	$ 12.33 billion
9.	Australia	$ 11.74 billion
10.	The Netherlands	$ 11.56 billion


SCANDINAVIA
Leader in LAN use (88.1% of sites) and Web presence (62.3%)
U.K.
60.9% of business sites have Web access
SCANDINAVIA
USA
ENGLAND
USA
ITALY
U.S.
59.4% of business sites surveyed operate on LANs
61.4% have Web access
Only 34.8% of sites surveyed have home pages on the Web
50.5% say year 2000 will have no influence on IT budget change from 1997 to 1998; 46.1% report some influence
ITALY
No. 2 in western Europe in Web presence (31.6%) of sites surveyed

Global Snapshot

CONTINUED FROM PAGE 55

But for some, the decision is farther in the future. "We'll probably stay the same for another year or two and then take a hard look at Windows NT. Right now we don't think it's mature enough," says Terry Cieslak, executive vice president and chief technology officer at May and Speh, Inc., a direct marketing and outsourcing service provider in Downers Grove, Ill., and a Novell customer.

INVESTMENTS AND SPENDING

Just under half (49.6%) of U.S. respondents expected their IT budgets to remain roughly the same in 1998, 35.3% predicted an increase and 11% foresaw a decrease. The banking industry will outpace other industries in spending hikes this year, according to IDC, with 72% of respondents expecting increases and none anticipating lower spending. The most important drivers? Mergers and acquisitions, says Carey Azzara, an IDC program director in Framingham, Mass. "When banks merge, IT systems need to talk to each other. One system needs to be subsumed by the other, or a new system must be deployed. Each of these activities requires a nontrivial IT investment," he explains.

Jeff Coomer, vice president of information services at Black and Decker Corp.'s North American Power Tools Division in Baltimore, is planning a modest spending increase this year. "After two years of budget decreases, IT spending will be up 5%," he reports. Much of the increase will go toward a strategic investment aimed at improving supply-chain operations. "The target is reducing inventory, improving our cycle time and getting our service level up, all of which are designed to take cost out of the operation," Coomer says.

Budgets tend to run in cycles, Azzara says. A company may spend heavily for a year or two to implement a large system, then cut back the next year. Berry is one who saw his information technology budget decrease this year. "We just came out of a three-year systems plan whose thrust was to move off the ES/9000 mainframe to the AS/400 platform. Now that we're off the mainframe, we've reduced our expenses by about 11%," he says.

MOREONLINE

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In the U.S., companies are focusing their strategic investments mainly on end-user equipment such as PCs and workstations or on installing and upgrading infrastructure. Investments in Internet and intranet applications are catching on in small companies (defined in the study as having fewer than 100 employees) but represent a lesser proportion of spending in larger organizations and a minuscule part of the budgets of large multinationals. Many of those larger companies may have done most of their investing in these facilities before 1997 and now are dealing with the relatively low costs of maintaining World Wide Web-based applications. At Shenandoah Life, Berry has allocated 5% of this year's budget to turn the company's existing Web site into an extranet where insurance agents can obtain the information required to quote on and write policies, rather than resorting to telephone and fax messages.

The U.S. ranks third in the average IT operating budget size per individual site (the survey collected data on IT budgets at individual sites rather than for entire corporations). Leading the pack is the U.K., at nearly $176,000, followed by China, at $149,000. The average budget for U.S. sites in 1997 was $138,000. IDC found that U.S. sites are far more likely to belong to multinational corporations than are sites in other countries.

Year 2000 spending may cause a temporary blip in a company's IT budget. At Black and Decker, the supply-chain initiative — called Power Chain — is addressing 60% to 70% of the company's year 2000 problem by replacing systems that otherwise would need to be remodeled. "Every week I'm balancing the Power Chain program and the Y2K effort. Everything I put into or take out of Power Chain has an impact on the Y2K work," Coomer says.

THE POWER BEHIND THE PURCHASE

Taking a global view of the power that internal and external influences have on spending decisions, IDC found that the most senior IT executive has the strongest voice in about 70% of companies, with the president or CEO second at 58%.

But the CEO's influence is stronger in countries such as China and South Korea than in the U.S. CEOs are most likely to be heavily involved in decisions concerning end-user devices such as PCs, in Internet and intranet strategies and in changing or upgrading the corporation's operating system.

According to Italy-based Luisa Bordoni, who studies European vertical markets for IDC, there is a "very strong and deep strategic movement" in Europe, with the emphasis on turning IT into a tool for competitive gain. She sees that especially in segments under the greatest business pressures, such as telecommunications, utilities undergoing privatization, banking and discrete manufacturing.

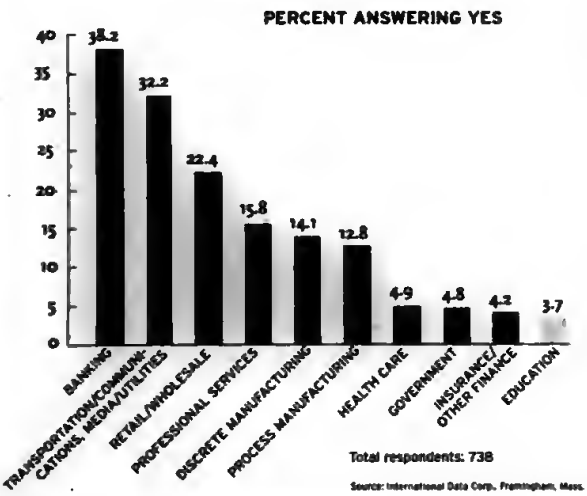
Overall, expect increased, but not frenetic, spending this year. Investments will be aimed at process improvement and upgrading infrastructure at the forefront and, to a lesser extent, broadening the reach of companies through Internet and intranet development. □

Williamson is a freelance writer in Warwick, Mass.

BANKS TAKE E-COMMERCE LEAD

Banks lead all other U.S industries in electronic commerce off their Web home pages

Are sales transactions available on your home page?



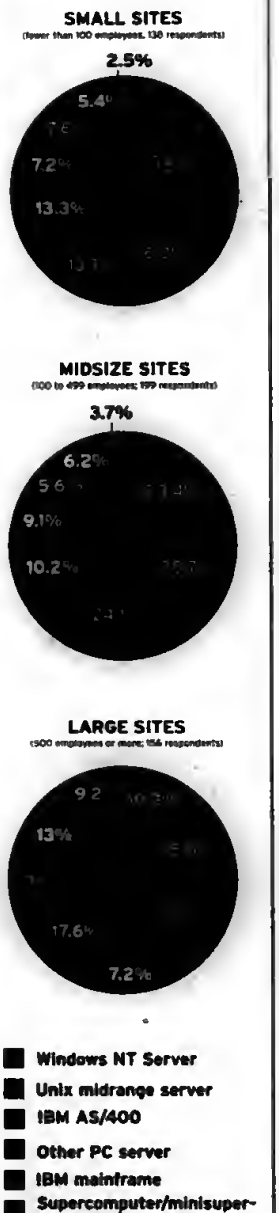
Total respondents: 738

Source: International Data Corp., Framingham, Mass.

NT SERVER HAS A HOLD ON SMALL SITES

Windows NT Server is running core business applications in 31.8% of U.S. sites, but it holds the most sway at sites with fewer than 100 employees

Which is the most important system running your core business applications?



Source: International Data Corp., Framingham, Mass.

MARC ROLOO

IT's LEADERSHIP GURU

Ex-CIO Dick Dooley is the closest thing IS has to a spiritual leader

DICK DOOLEY has raised the bar in information systems leadership. As chief information officer during the '60s and '70s at First National Bank of Chicago and Colonial Penn Insurance Co. in Norristown, Pa., he was studying people while other CIOs were studying flowcharts.

As co-founder of the Society for Information Management and guru of its Regional Learning Forums, Dooley has transformed more than 600 IS managers from the sum of their technical and business parts into something better: self-aware people with a high capacity for learning and growth.

Meanwhile, Dooley, 64, has evolved from a self-styled "IS terrorist" to a spiritual leader of the technical community. But whatever the persona, he has always modeled the leadership qualities he tries to infuse. He recently talked with *Computerworld* senior editor Kathleen Melymuka.

CW: What is it about your own life that led you to this kind of work?

DOOLEY: When we were kids, someone sort of stole their family car, and we got a flat tire. It was terrible; we were going to get caught. I told them what to do to change the tire. The next day all of us thugs were standing around the street corner talking about it, and someone said, "Dooley took over." I said, "Well, we needed to get it fixed." In almost everything I've ever done I've tended to operate at that level. If there's no need for leadership, I move on.

CW: How has the typical IS leader changed during your career?

DOOLEY: Some of the changes have been towards things I was into early. I always had a need to read, explore.

[As a CIO,] I was always interested in the social and team aspects, the management process and leadership; developing the people. The people who worked for me thought I was just kind of a butterfly. Back then it was technical competence first and last. Today, if you're not outward-looking and don't have relationships with other turf owners, you don't play.

CW: Who were your mentors, and what did they teach you?

DOOLEY: The chairman of the First National Bank of Chicago taught me communication, a positive attitude and speed. My boss, who was between me and him, taught me focus and commitment: what it means to keep your word and follow through.

CW: Why did you create the Regional Learning Forums?

DOOLEY: There was a screaming need for it. With thin staffs and people so overcommitted, the idea of helping develop high-potential people is almost nonexistent. People haven't got any time.

CW: When they stripped out middle management, they stripped out the mentors?

DOOLEY: They stripped out all those people who took you to lunch and said things like, "You're talking too much at meetings." We used to get a lot of that on the job. Now there's nothing going on internally that's even close to that. But there's still a need.

CW: What are you hoping to accomplish with the forums?

DOOLEY: [Develop] capacities. [The learning hierarchy] is potential, skill, competency and capacity. Capacities are broader, deeper, more flexible and transportable. They can be used at any time, in any situation, in any industry.

CW: Why are capacities so important?

DOOLEY: When I was growing up, if you were world-class in IMS [an IBM mainframe software program], you were practically guaranteed a job for 10 years — maybe life. Today, to be world-class at Lotus Notes doesn't guarantee you anything. You can't really count on skills and competencies today; you have to look for capacities. Leadership learning forums are about learning to learn; learning to change, to communicate, to build relationships.

CW: What would I notice about someone who has been through a learning forum?

DOOLEY: You can tell by the way they approach you: They're trying to add to your value rather than take it away. It shows in creativity: frequency of thinking out of the box. It shows in manners; protocol; understanding that there are times to speak and not to speak; that some issues are not worth arguing about.

CW: What separates an IS leader from a manager?

DOOLEY: Management is a little more characterized by how and what; leadership, by why and where and when. Leadership tends to be much more spiritual; management, much more physical. The two obviously overlap, but at the extremes they don't.

CW: How can an IS manager nurture leadership among IS employees?

DOOLEY: By setting a good example and communicating about it, by making it a topic of meetings, by allowing space for it. Don't do it all yourself; encourage people to pick up the ball and run with it.

CW: Are you a saint or a heretic in the IS community?

DOOLEY: I'm sure some would say heretic because I've always been a radical thinker. I have heard the phrase "spiritual leader" and I actually like it. I'd be pleased to be a spiritual leader. □

MORE ONLINE

For a longer version of this interview, visit our Web site:

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.WORK THE WEB.

THe CIO IS iN THE hot seat as the executive committee drills one department head after another on escalating costs. How are you going to [1](get the newly acquired subsidiary onto our e-mail system)? How are you going to [2](hold down your network administration head count) as you add hundreds of new users? How can you afford to [3](roll out new apps to the whole company)? It's like the Spanish Inquisition, but the food is worse. Her stomach rumbles from the dry turkey sandwich and yuppie water served at the start of the meeting as one committee member wakes up long enough to ask about the [4](Year 2000 problem) he saw on a CNN segment. "Not a problem, we have it covered," she replies. With an unforeseen compliment for completing the [5](global supplier extranet) project, she is excused. Exiting, she smiles at the beleaguered marketing director, who is about to be skewered because the company's celebrity pitchman has just appeared on the cover of a major supermarket tabloid.

THE [6](BEST PARTS) OF HER MEETING WERE MADE POSSIBLE BY LOTUS.

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The brightest kids coming out of our engineering schools today aren't stupid. They've seen what corporate America has done to the IT professionals of their

JIM CHAMPY

SEVEN WAYS TO COURT TODAY'S HOTTEST GRADS

parents' generation. Many of their moms and dads were overworked and then tossed overboard when they got older and a little out of date.

They've also seen the tremendous wealth created for individuals in the software business. Microsoft alone has created several thousand millionaires, many of whom retired in their 30s to "do their own thing."

So today's top graduates aren't heading in droves to large, traditional computer companies. Nor are they signing up at corporate IT departments, where there will be approximately 95,000 new job openings each year, according to the U.S. Commerce Department.

Instead, they're frequently starting their own companies. They're pursuing wealth and their own destiny in Internet software ventures or in all-or-nothing shots at new applications and this season's killer games. Like Milton's "Lucifer," who famously said, "Better to reign in hell than serve in heaven," these talented Generation Xers want no part of companies that promised an exciting career but delivered conformity and a pink slip.

I live in Boston and have ties to one of the great schools of science and engineering "across the river." So I'm aware of perceived graduate trends. And Cambridge is a hotbed of start-up fever. But most of my evidence comes from anecdotal conversations with 50-ish fathers and mothers in Massachusetts, where the old Route 128 high-tech corridor has been subject to what the economist Joseph Schumpeter hopefully called "creative destruction."

One father, who survived the tumultuous years at Digital and now has two sons in college, told me he is awaiting the next round of layoffs expected from the Compaq merger. When his last son graduates, he's quitting. He'll take whatever retirement benefits are owed him and start his own software firm.

Meanwhile, the demand for qualified graduates constitutes a crisis, even for mighty Microsoft. And for companies in the computer services industry — which sells nothing but human IT skills — the lack of trained candidates is staggering. At one Gartner Group conference, major players such as IBM and Andersen Consulting talked about the need for tens of thousands of recruits annually. Most of these companies will have to train them.

So is that it? Should nonglamorous IT and IT-reliant companies simply resign themselves to underperforming because they can't attract the right people? Not necessarily.

Creative strategies can still garner a larger share of young brains and entrepreneurial spirit. Here are some ideas:

1. Loosen up. The current generation comes with an attitude. Therefore, jettison overly controlling practices regarding dress, travel, hours and office "recreation." I've visited Cambridge start-ups with ping-pong and pool tables, and even one with a grand piano in the lunchroom.

2. Understand this group's important issues. Many recent grads have a deep social sense; their causes include support of education (which propelled them), environmental issues and a belief that technology can solve many human problems. So leave time for private projects and renewal, such as sabbaticals.

3. Allow separate projects. Provide time to let your stars pursue technology interests for the company's ultimate benefit, without letting it turn into pure R&D. Also, think about launching some internal start-ups that let your people share in the risks and rewards of entrepreneurship. Thermo Electron Corp., for example, spins out promising technologies and services by offering key employees a minority share in newly created subsidiaries.

4. Create a sense of ownership. This is most important. Giving these folks a piece of the action in the form of incentive stock and stock options creates loyalty and results. Cisco Systems and Microsoft, for example, offer stock options to all full-time employees. Microsoft has averaged about 2,500 shares per employee.

5. Create a highly collaborative environment. Let people work closely with one another and get the educational benefit of working with other smart peers and leaders. Although many IT professionals are viewed as "loners," most of them welcome being on a team that succeeds at a tough job.

6. Loudly signal the value of intellectual work and the importance of having smart technologists in the workplace. Many large companies spend more time complaining about how expensive IT people are, rather than thanking them for contributions.

7. Articulate the "higher purpose" to which IT people are contributing. At a pharmaceutical company I know of, the IT folks are told they're helping create not only a faster drug-approval cycle, but also a new health care process that will save lives.

The bottom line: Value your people. Create a workplace where you'd want your children to work. □

Champy is chairman of consulting at Perot Systems Corp. in Cambridge, Mass. His Internet address is JimChampy@ps.net. His newspaper columns are syndicated by Tribune Media Services.

f.y.i.

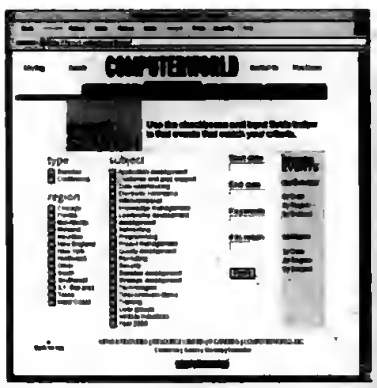
MORE FROM CW: *Events, year 2000 — just a click away*

Looking for all the latest news on the year 2000? How about a list of upcoming information technology conferences or seminars?

Look no further than our Web site, Computerworld online: *www.computerworld.com*.

We update our year 2000 page weekly with the latest stories from the pages of *Computerworld*. From the home page, click on "News & Features," and under "Features," click on "Year 2000."

Our listing of IT seminars and conferences is constantly updated. Just scroll down from the home page to "Conferences," and search for upcoming events by date, region or subject (pictured at right).



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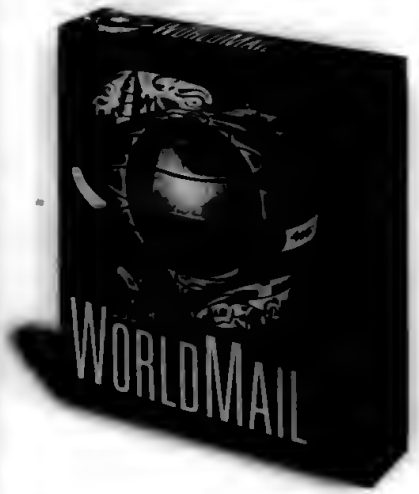


CLASH *on the* INTERNET

Tests by *Computerworld* and Client/Server Labs show that cheaper Internet-based mail packages hold their own against groupware giants

BY BRETT MICHAEL HAYES

With more business being conducted via Internet E-mail, the makers of proprietary messaging systems have had to adapt to fit Internet communications standards. That has placed these refashioned proprietary engines face-to-face with a class of messaging systems rooted in the Internet standards.

Client/Server Labs scrutinized six messaging packages to compare how the two classes serve key mail needs of a midsize to large organization. Representing the proprietary, modified-groupware class were Lotus Development Corp.'s Domino Mail Server 4.6.1, Microsoft Corp.'s Exchange Server 5.5 and a second-round beta version of Novell, Inc.'s GroupWise 5.5. The standards-based products were Eudora WorldMail from Qualcomm, Inc., SuiteSpot Standard Edition 3.5 from Netscape Communications Corp. and Sun Internet Mail Server from Sun Microsystems, Inc.

We drove the contenders over some fairly rough ground and concluded that although the groupware products provide a wealth of features, they offer more than is necessary for standards-based E-mail. The results are complexity and cost.

An organization whose primary need is E-mail may be satisfied by using a groupware product, but doing so can be rather like plowing a garden with an M1 Abrams tank and may require a proportionally military-scale budget. The proof? The cost of the proprietary products is up to 13 times that of the standards-based products in 250-user configurations, and in our tests they often ran many times slower.

Hayes is systems control manager at Client/Server Labs, Inc. (www.cslinc.com) in Atlanta, a primary test partner of Computerworld.

e-mail scoreboard

INSTALLATION	Very good	Excellent	Fair	Very good	Good	Very good
DIRECTORY SERVICES	Good	Good	Fair	Fair	Good	Good
USER MANAGEMENT	Good	Very good	Very good	Good	Fair	Fair
GROUP MANAGEMENT	Good	Fair	Good	Good	Very good	Excellent
BEST FIT	Small to midsize organization with heterogeneous platforms	Small to midsize organization	Existing NetWare shops	Small to midsize organization or Internet service provider	Midsize to large organization	Midsize to large organization or Internet service provider

key findings

TEST BED

We tested the server software on several levels of hardware platforms, including a Dell Computer Corp. PowerEdge 4100/200 server, several Hewlett-Packard Co. Kayak workstations and a Dell Optiplex workstation, all running Microsoft Windows NT Server 4.0 with Service Pack 3.

The Sun Internet Mail Server was tested on a Sun Ultra30 station running SunOS 2.6.

Mail and browser clients ran on several NT and Windows 95 platforms and included Microsoft Outlook Express, Qualcomm Eudora Lite 3.05, Netscape Communicator, a beta of Pegasus Mail 3.0 (a popular E-mail client distributed freely on the Internet), Netscape Navigator Gold and Microsoft Internet Explorer 4.0.

We installed each package, created individual user accounts, attempted mass creation of user accounts and manipulated group memberships.

We also sent and retrieved mail using Post Office Protocol 3 and Internet Message Access Protocol and attempted to look up user and group information using Lightweight Directory Access Protocol (LDAP) queries.

MESSAGE THROUGHPUT

We also applied an informal, "rough and ready" stress test by loading a large volume of messages onto the low-end servers.

Operating the server packages on small (almost workstation-class) machines in order to maximize the difficulty, we sent messages from a DOS version of sendmail on 48 client PCs.

In the first stage of the test, we had each of the 48 machines send 10 messages, with each message addressed to 10 users on the target server, for a total of 480 Simple Mail Transport Protocol sessions and 4,800 messages to be delivered to mailboxes.

In stage two, we had a single machine send 1,000 individual messages to a single mailbox on the target server.

This test shouldn't be construed as a fair comparison of all of the packages because the Sun Internet Mail Server ran on only the one Ultra30 station.

Although we expected that 480 submissions would be processed faster than 1,000 submissions, we were surprised to discover that that wasn't so for two of the groupware products.

Both GroupWise and Domino appeared to have noticeable overhead when parceling out a single message to a list of multiple mailboxes.

REMOTE ADMINISTRATION TOOLS

Of all of the packages, only GroupWise lacked some form of remote administration operable across the Internet.

Each of the others provided either a network-capable administration utility or could be administered through a browser client.

Domino and SuiteSpot both support remote management via a standard World Wide Web browser, which we found preferable to the other packages.

PRICING

We took the pricing information supplied by the vendors and calculated the software cost for each package at the 100-, 250- and 1,000-user levels. Our pricing didn't factor in elements such as hardware costs or intangibles such as support personnel. Even a simplistic calculation such as that showed that the prices varied by an astonishing factor of 13 between the lowest and the highest.

DIRECTORY SERVICES

One of the most widely touted aspects of E-mail servers in recent months has been the move toward standards in directory services such as LDAP. That protocol allows mail clients to use uniform queries to ask an E-mail server for information about the names and E-mail addresses of users or groups of users at that site — at least in theory.

Like any new standard undergoing an industrywide birth process, LDAP was also the greatest source of pain in setting up some of the servers. Understanding the relationship between user accounts and the nomenclature of the LDAP directory structure demands that the administrator learn a new set of tasks.

Domino and Exchange emerged in that arena as the clear winners in terms of ease of setup, with their default installation procedures handling the task from start to finish. GroupWise fell at the other end of the spectrum, with an extremely convoluted setup process for its LDAP server, a process further marred by some inaccuracies in the online documentation.

Both WorldMail and Sun Internet Mail Server installed the LDAP service as part of their normal installation path.

However, because of the way they implement some options in the LDAP standard, the clients we used required some tweaking before they could correctly access information.

Once set up and accessed with correctly configured clients, all of the packages except GroupWise and WorldMail returned information quite readily and appropriately to the queries we made.

USER AND MAILBOX MANAGEMENT

All of the packages had good tools for adding and manipulating individual users accounts. However, various difficulties emerged when we moved on to things such as manipulating the details of groups of users or adding large numbers of users automatically.

Exchange and GroupWise both establish a direct connection between a user mailbox and a user account at the operating system level. Requiring that association introduces an entire layer of problems such as password management for any organization that supports large numbers of remote users.

In contrast, neither SuiteSpot, Sun Internet Mail Server nor WorldMail requires or supports a direct connection between a mailbox user and an operating system-level account.

from the groupware side

MICROSOFT EXCHANGE

An excellent choice for an organization with a strong commitment to Windows NT and the need to support primarily LAN users with some remote access requirements. Exchange probably should be avoided by Internet service providers and organizations that focus on remote access. It was also one of the top performers in our coarse test of throughput.

Microsoft Exchange had the most straightforward installation of the group. The entire process was point-and-click with good clarity.

One limitation that we noted was the need to associate each mailbox with an account in the NT domain structure. It's possible to associate multiple mailboxes with a single account, but that presents a security risk when accessing the mailboxes via Post Office Protocol 3 or Internet Message Access Protocol (IMAP). Exchange uses the password from the associated NT account as the password for all mailbox connectivity.

Relying on the use of NT domain user accounts had a startling effect on the ability of Exchange to handle incoming Simple Mail Transport Protocol (SMTP) mail through its Internet Mail Connector. Although Exchange turned in an excellent time of 44 seconds to process our 4,800 delivery workload, that process time soared to almost 6 minutes when the Exchange server was cut off from its domain controller.

LOTUS DOMINO

Pay attention to the minimum resource requirements. More than any of the other products, Domino suffered terrible pains on the low-end, workstation-class "servers" we tested. The need not to skimp on horsepower was clearly evidenced by the dismal performance in our throughput runs.

Domino remains targeted at organizations with heterogeneous networks that require the support of multiple operating systems and hardware platforms. The introduction of the slimmed-down Domino Mail Server bundle was designed to meet the needs of those who want E-mail today but plan to move toward shared applications in the not-too-distant future. If remote mail is all you want, Domino remains a bit too much.

Lotus Domino received major installation improvements when its Version 4.6 was released, and the new Version 4.6.1 continues the trend with some streamlining in setting up the Internet mail connection. Domino's refined installation process is as simple as that of Exchange. In our throughput test, we discovered that our installation of Domino couldn't be configured to support more than eight incoming SMTP connections. So we adjusted the test to use eight client machines, each submitting 60 messages with 10 recipients each, to reach the original 480 submissions leveled against the other servers.

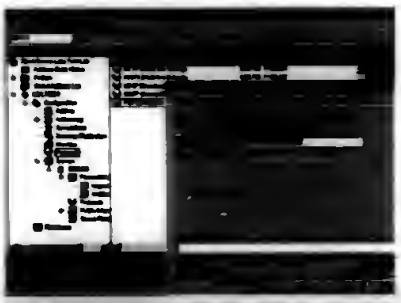
NOVELL GROUPWISE

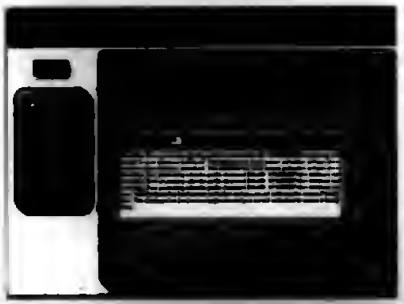
The sustained reliance on NetWare to provide GroupWise with Novell Directory Service (NDS) will continue to hold it largely in the world of existing NetWare shops. Like the other groupware products in our comparison, GroupWise serves best in the LAN arena with a limited number of remote connections.

GroupWise had the most complicated installation, primarily because of the continued requirement for a separate NetWare server to support NDS. Keeping track of which services must run on which platform took some getting used to. GroupWise did fairly well in our throughput test, accepting the 480 multidelivery submissions in a fraction over a minute, though it required an additional 21 minutes to complete the parceling out to individual mailboxes.

The 1,000-message, single-delivery submission test was only marginally different, at 16 minutes to accept the mail and an additional 3 minutes to complete delivery. GroupWise was, in fact, the only package that had a measurable delay in delivering the 1,000-message submissions.

GroupWise suffers from the same user account limitation as Exchange; it requires an NDS account for each mailbox. But GroupWise does support separate passwords for regular LAN access and for Internet access.





features

Operating system tested	**Windows NT 4.0**	**NT 4.0**	**NT 4.0 IntranetWare 4.11**	**NT 4.0**	**NT 4.0**	**SunOS 2.6**
LDAP	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
IMAP	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Calendar*	**Yes**	**Yes**	**Yes**	**Separate**	**Yes**	**Qz '98**
Browser access to mail	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**No**
Browser access to administration	**Yes**	**No**	**No**	**No**	**Yes**	**Custom Hotjava client**
Browser access to LDAP	**Yes**	**No**	**No**	**Yes**	**No**	**Custom Hotjava client**
Remote administrator	**Browser or Notes client**	**Exchange Admin Utility (NT only)**	**No**	**WorldMail admin utility**	**Browser**	**Custom Hotjava client (NT)**

*Domino, Exchange and GroupWise require browser or server-specific client. SuiteSpot requires browser.

from the internet side

QUALCOMM WORLDMAIL

For simple and uncomplicated management, WorldMail is quite acceptable. It's a good choice for the small to midsize organization with a high percentage of remote users, although it seemed to lack the administrative horsepower to support a midsize to large Internet service provider.

Installing WorldMail was simple. The only negative is that it requires typing in a very long authorizatioo key that vanishes if you make a typing error.

After adding a few accounts manually, we were able to export that account information to a flat file and model a new flat file for use in importing more accounts in a block. However, it turned out that we had made an error in our input file, unintentionally creating an entirely new local E-mail domain when we imported the file.

That wouldn't have been a major problem, except for what our attempts to recover revealed. When we deleted the accidental domain, the associated mailboxes were deleted but weren't removed from the LDAP directory or released from the license count.

The other peculiarity of the LDAP support in WorldMail was the fact that it didn't return E-mail addresses when queried for user information. A query for a user by name would return that user's name from the directory, but no address information along with it.

WorldMail performed well in our throughput tests, completing the 480 submission test in 49 seconds, and the 1,000-message submission in just under 3 minutes.

NETSCAPE SUITESPOT

SuiteSpot continues in the Netscape philosophy of bundling separate products in a pick-and-choose fashion. Although that allows an organization to field portions of the suite on various machines to do things such as load balancing, it also introduces an extra layer of complexity in the planning, installation and administratioo processes. The expertise needed to maintain the system may be too much for smaller organizations with simple needs. However, the flexibility seems beneficial to larger organizations that have full-time staff to maintain a system.

For SuiteSpot, installing the LDAP server was actually the first step in the entire installation process because the remaining elements of the package were designed to refer to the LDAP server for all of their information. The only blotch on that process was the need to repeatedly enter passwords into some screens, which didn't always clearly indicate whether a password was being verified or established.

SuiteSpot handles bulk adding of mailboxes through its directory services engine, using a file format called Lightweight Directory Interchange Format (LDIF). That format requires a fairly good understanding of an LDAP server and doesn't lend itself well to manual editing. SuiteSpot provides tools to export data to an LDIF file, but the documentation doesn't provide good models of the import process.

SuiteSpot performed well in the throughput test, processing the 480 submission test in 3 minutes, and the 1,000-submission test in just under 4 minutes.

SUN INTERNET MAIL SERVER

As a pure Internet system, Sun Internet Mail Server is well-adapted to larger organizations and Internet service providers.

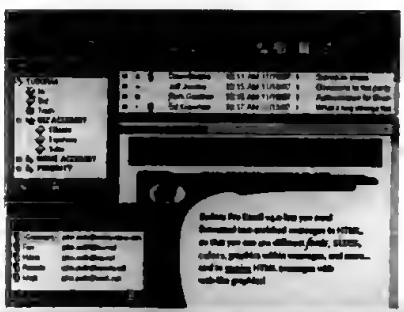
For smaller organizations, without an existing commitment to the Sun operating system, adding the Sun infrastructure and appropriate support is probably prohibitive. Once committed to supporting at least some Sun systems, though, adding Sun Internet Mail is easy.

The Sun Internet Mail Server installation was given to an administrator with only a tiny amount of Sun experience and still was completed easily. The only hitch had to do with a minor error in setting up SunOS itself for Domain Name Services resolution.

Like Netscape, Sun handles the bulk loading of accounts through LDIF files and provides tools for creating an LDIF file from existing files of user names on a Solaris server.

It also offers tools to export Sun Internet Mail directory information to an LDIF file. However, also like Netscape, Sun doesn't provide usable examples of creating an LDIF file from scratch. For a newcomer to the internals of LDAP, that is a substantial hurdle.

A significant distinguishing factor in Sun's group management was the presence in the setup routine of several features normally associated only with mailing list management software. Questions relating to things such as group moderators and whether group membership information was public or private were a pleasant surprise. □



price			performance		
Qualcomm	**$1,040**	**$2,525**	**Microsoft**	**44 sec.**	**4 min., 30 sec.**
Sun	**$3,495**	**$5,295**	**Sun**	**46 sec.**	**3 min., 33 sec.**
Netscape	**$5,350**	**$9,100**	**Qualcomm**	**49 sec.**	**2 min., 58 sec.**
Lotus	**$4,320**	**$9,570**	**Netscape**	**3 min.**	**3 min., 55 sec.**
Microsoft	**$6,319**	**$14,719**	**Novell***	**17 min., 16 sec.**	**19 min., 9 sec.**
Novell (GroupWise 5.2)	**$14,360**	**$32,625**	**Lotus***	**1 hour, 25 min., 51 sec.**	**12 min., 15 sec.**

* The results for Novell in both tests and Lotus in the 48-machine test include noticeable extra time to process messages into mailboxes. Novell took 21 min., 10 sec. for 4,800 messages and 2 min., 58 sec. for 1,000 messages. Lotus took 1 hour, 14 min., 9 sec. for 4,800 messages.

SNEAK PEEK

E-MAIL WORLDS COLLIDING

By Cathleen Gagne

TODAY: WHAT'S YOURS IS MINE

The familiar saying "Imitation is the sincerest form of flattery" certainly seems to apply to the two E-mail camps: Internet mail and proprietary mail. Basically, they're stealing the perceived strengths of the other. The Internet mail vendors are trying to fold groupware capabilities into their open-protocol, stripped-down mail products. And proprietary mail vendors are attempting to wrap open protocols around their feature-rich groupware.

Internet mail products, such as Qualcomm, Inc.'s Eudora, Sunsoft, Inc.'s Solstice Internet Mail Server and Netscape Communications Corp.'s Communicator and Hotmail, send information over open Internet protocols. Those protocols include Lightweight Directory Access Protocol (LDAP), Internet Message Access Protocol 4, Simple Mail Transfer Protocol (SMTP), Secure Multipurpose Internet Mail Extension (S/MIME) and Post Office Protocol.

Proprietary mail means just that: It sends information according to whatever proprietary protocols a vendor uses. Veteran groupware vendors such as Lotus Development Corp., Novell, Inc. and Microsoft Corp. are in that category.

According to experts in the field, there are definite advantages and disadvantages to both the open and proprietary approaches.

What the Internet mail vendors have to offer are native protocols that were built from the ground up, says Nina Burns, president of Creative Strategies, Inc. in Palo Alto, Calif. "Lotus and Microsoft have the challenge of taking what they've already got in installed base and transitioning it to open standards," she says.

Ron Messner, an analyst at Creative Strategies, says that "not having to use gateways to get out into the SMTP and MIME environment" is a good example of the advantages of open protocols. "That's a key consideration because we all know that in conversions, there are problems. Some people are willing to sacrifice richness and robustness because, in doing so, they're eliminating gateways," he says.

Speed, performance and low cost are also advantages of Internet mail, Messner adds. "But the things that you're giving up that the three major proprietary [vendors] offer are things like directories that really make it easy for you to find addresses and find people," he says.

Looking ahead at vendor positioning, Gary Rowe, a principal at Rapport Communications, Inc. in Roswell, Ga., says he believes that the proprietary vendors' current market presence will help them remain leaders.

Tim Sloane, director of internet infrastructure at Aberdeen Group, Inc. in Boston, says he sees Netscape duking it out with Microsoft and Lotus. "Offhand, I think Netscape is the wild card," he says. "It could be the one to drive a lot of these new concepts and issues — in particular around the directory."

Around year's end, both sides should have the same set of developed functionality and developed adherence to standards, says Joyce Graff, an analyst at Gartner Group, Inc. in Stamford, Conn.

MORE ONLINE

For more E-mail info visit Computerworld online.

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TOMORROW: "E" STANDS FOR EVOLVING

E-mail is looking at a busy future. Alterations in directories, security, intelligence and the unification of voice, mail and data are on the horizon for E-mail products, according to analysts.

You also can expect Internet mail's infrastructure to become more standardized.

And outsourcing of mail systems may become prevalent as they get more complicated.

The first trend that Sloane predicts is that directories will be segregated from mail. "I believe we'll see the directory and particularly LDAP and the security value of LDAP starting to break out as a separate issue, although still tightly coupled to mail," he says. The benefit, he adds, is "single sign-on, single password. So as a user, I'm able to go to either my company or to a public directory."

A second trend, tied closely to the first, is the growing need for E-mail security, Sloane says.

"There are a bunch of things that come up about that," he says. "It requires a consolidated directory like LDAP in order to be able to get the certificates about, and it brings up the issue [of] whether, when I encrypt my mail, my company should be able to have the key. Should there be a corporate strategy for keys, or should I go out as Tim Sloane to the public infrastructure and get a personal key?"

Sloane says he also expects that in a little more than a year, users will see active mail, which will allow mail to do more for the end user. "As an example, a company might have me fill out a form that is, say, a purchase order form or travel advance request. Based on how much I'm asking for, that form can actually be routed to the appropriate group," he says. How this will work is that "the mail item will actually have a Java applet embedded in it, which can do routing or other intelligent actions when it arrives," he says.

Users stand to benefit over the next year as the Internet mail infrastructure becomes more standardized, Graff says.

"There's a lot of money to be saved or made in the extranet and a lot of business-to-business communication happening over the Internet," Graff says.

"For example, if I have communications that I need to carry on with my suppliers, my business partners and my agents in the field, all of that can happen much more efficiently over E-mail," Graff says. "Once we both have the same basic protocols working for us, there's more we can do."

Graff adds that with a standardized infrastructure, users will be able to exchange attachments much more easily.

Burns says she expects more companies to outsource their mail systems to migration services companies to spare internal staff the extra workload.

"Migration services companies are companies that go in and provide services for people to roll out their mail systems," Burns says. "What we're finding is that when they're done by internal staff, it takes away from other areas that they are working on." □

Gagne is Computerworld's senior editor, Review Center.

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COMPUTERWORLD

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In Depth

Life *during* Wartime

BY LARRY COOKE

How serious will the effects of the year 2000 problem be? One economist argues that the nation will be forced to adopt a wartime footing, complete with rationing and an unsettled postwar period

ROSIE THE RIVETER, MEET PHYLLIS THE PROGRAMMER.

In war, average citizens are drawn in as well as combatants. The year 2000 is creating an economic vortex not seen for a half-century. There may be no blood in the streets, but the economic dislocation, fear and shortages will reverberate until the necessity to win overpowers the negative forces. Government, industry and society will channel the world economy in ways we can scarcely imagine.

Today, while still under a veil of complacency, manpower, materiel and money increasingly are being mobilized to extirpate the millennium bug. An "accelerator effect" is creating a boom in information technology, which creates a relentless labor and capital drain on other sectors of the economy. As other goals dry up, the impact extends far beyond IT.

Why will the whole economy be drawn in? A wartime economy is marked by shortages. No one knows exactly how and when the scenario will play out, but many of those shortages are beginning to appear and are certain to widen.

WARTIME SCARCITY

One of the marvels of the U.S.'s current expansion is that prices don't appear to be going up.

That will change soon.

The downsizing of the late 1980s and early 1990s created an artificial depression for IT workers. But many who took lesser jobs now have re-entered IT, earning almost as much as before. Once the pool of displaced workers has been absorbed, salary pressures will be felt.

Some moderate flow of new blood is entering the IT field to take up the year 2000 battle. Trade schools are training entry-level Cobol programmers as year 2000 program-fixers. The return of old blood, and the modest influx of new blood, has postponed some of the price pressures. That pool is now largely emptied, and the emphasis on the year 2000 is accelerating. Price pressures on scarce resources are certain to be felt soon.

As more sectors of the economy switch to a wartime footing, the entire supply chain will become increasingly engaged in this war against time.

As in most wars, the global economy will organize for victory. Shortages will be met in five ways:

▸**Ramp-up.** Mass production techniques and effective templates to solve common problems will emerge. Software factories are the modern analogue to World War II bomber production lines. Most software and hardware vendors will deliver upgrades that will work beyond 2000, albeit at a high price to the ongoing businesses.

▸**Reinforcements.** Extraterritorial resources increasingly will come into play. For example, France, now with 12% unemployment, can provide more resources, as can India and the Far East.

▸**Triage.** Programs and systems now seen as important will become casualties of war. If it costs too much to fix, we may have to learn to live without it. Many businesses will, out of necessity, rediscover pencil and paper. (Hopefully, that won't be in mission-critical applications.) Abandoning useful systems will have a high cost, but it will be far less expensive than not surviving.

▸**Rationing.** The government's ability to react will allow time only to freeze salaries. That rations money and opportunity, which was done in the early 1970s by President Nixon. It's easy to proclaim. And it's easy to enforce, since most employers will go along voluntarily with this patriotic goal.

▸**War-work incentives.** Rather than implementing a military-style draft for year 2000 workers to solve the government's problems, incentives for a Peace Corps-style appeal is more likely, with deferred benefits such as bonds or education.

SIMILARITIES AND DIFFERENCES

One major difference between this wartime

economy and previous ones is that the deadline is fixed. Inventories of programs built over the past 30 years must be fixed or replaced in the next 18 months. That's a time compression of 20-to-1 over what it took to write the programs in the first place! That compares, in change of scale, with the ramping up of bomber production lines during World War II.

Then there's the effort of locating the old compilers, finding people who can read the code and (especially) locating people to build test beds for all the stuff. That is comparable to training bomber pilots in 90 days — the "90-day wonders" of World War II. Testing isn't just dusting off a technique or two. Most systems never had test beds built for them, and in fact, the idea of regression testing for most systems was forgotten right after delivery.

Developing that testing effort is a new skill for most programmers. It will take time and effort from more people, with more intensity, than most information systems shops have ever experienced.

Compare that activity with the economic impact of the space program in the '60s. Sending someone to the moon affected only a small corner of the defense industry, and the product was mostly burned up in the atmosphere or left on the moon. During that phase of the Cold War, economic activity boomed, while a few defense companies hired on a few engineers and scientists.

The current race involves nearly the entire country and much of the world economic structure across all private and government sectors. In the economic equation C + I + G (Consumption, Investment, Government), it all involves fixing the IT infrastructure. And it will be done in about two years instead of the eight years of the intensive space program. This economic activity is unprecedented, and it caught us all flat-footed. Now we must react with vigor.

AFTERMATH

The wartime prosperity after all wars up to World War II was followed by a depression. After 2000, though, as after World War II, many useful systems and applications will have been forgone for lack of resources and labor. During recovery, the business effort to catch up will provide a renewed stimulus. Also, as after World War II, the shortages created by the year 2000 war and the subsequent need to rebuild will drive the engine to restart the boom.

The hardware processing power curve will continue downward, and software will get a little better (although not so quickly because of the diverted manpower). The basic economic thrust will be to replace obsolete software, equipment and processes, just as if they had been physically destroyed by war.

But the changeover to a peacetime economy won't be smooth. After World War II, groups such as the longshoremen and coal miners held the country hostage for months. Some pre-year 2000 groups will try to wield power they will no longer have. As with the longshoremen and the miners, their power will have faded. But that won't stop them from trying.

It's hard to say now which groups will be disruptive. Will Cobol programmers march on Washington, demanding a GI Bill, a Marshall Plan or 40 acres and a mule? *Somebody* will be disruptive, so plan to stockpile flour, beans, disk drives and modems.

The popular image of unrest is of mobs marching with pitchforks, "labor on the move" or John Brown's rebellion. But the year 2000 may cause the first dislocation in which industry is at the forefront. Groups held back during the crisis may demand compensation. Perhaps software vendors, jawboned into small profits while the crisis is on, will later flex their muscles with Congress to gain favorable treatment. And that may in turn cause a ripple effect.

Hypothetically, of course, could industries that suffered from poor planning (perhaps banks, utilities or airlines) have the comparable impact (from the capital side) as the longshoremen of yesteryear?

RECOVERY

As in prior wars, the foe eventually will be met and conquered with pain and sacrifice. As in actual wartime, preparation and training will pay off. Plan early to save the critical applications and junk the trivial.

> The change back to a peacetime economy won't be smooth.

Companies that blindly repair everything may be in worse shape afterward than those that make sacrifices, trim down and come through the war leaner and sharper. But make sure the mission-critical applications aren't the ones left behind. The bombed-out economies of Germany and Japan fared best after World War II because they weren't burdened with the rusting infrastructure of the victorious allies.

The change to a wartime mentality and the resultant scarcity will bring innovation, new products and new ideas. With the space program, we got more than Teflon, fake orange juice and freeze-dried food; miniaturization of computers and better telecommunications are only a few of the by-products of that effort.

Like all wars, the year 2000 brings with it the Chinese curse: "May you live in interesting times." But through proper planning, a courageous attitude and the will to win, we can create a better future as we overcome this conflict. □

Cooke is a year 2000 management consultant at Millennia III in Westport, Conn., and a former card-carrying member of the American Economic Association. His Internet address is larryc@millennia3.com.

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MANAGEMENT? PHOOEY!

Corporate IS departments are introducing new career paths, internal consulting units, and "coaching" roles, so nonmanager types can move up without moving out **BY NATALIE ENGLER**

Once they find their wings, many corporate information systems professionals leave the nest, taking all their hard-earned knowledge with them.

It's not that they enjoy flitting from job to job. It's just that once they reach the top of the technology pecking order, all too often the only way to ascend is to move into management. And for some, that can be downright unappealing.

That didn't happen to Paul Streitmatter.

When the entrepreneurial bug bit this systems supervisor six months ago, he didn't leave his employer, Peoria, Ill.-based Caterpillar, Inc. Instead, he joined a new business within the company. He now works with state-of-the-art Internet technologies and deploys the company's infrastructure at 192 dealerships that sell Caterpillar tractors worldwide.

Streitmatter's job doesn't involve performance reviews or career development responsibilities. Yet he advanced in both pay and prestige.

Just two years ago, that wouldn't have been considered a promotion. But since Caterpillar introduced multiple career paths at the company, IS professionals are rewarded for their technical and business contributions.

Now "you can take a job that allows you to continue to develop your career without meeting all the requirements of a line manager," Streitmatter says.

It's just one way the company has acknowledged that the IS world is changing. Flatter IS organizations mean fewer management positions; companies are farming out large chunks of technical work; and everyone is fighting over the same scarce IS resources.

Meanwhile, a lot of really smart technologists want to be acknowledged for what they can do as individuals rather than for the number of people they supervise.

MULTIPLE CAREER PATHS

Years ago, it wasn't easy to promote someone like Rob Cronk.

A technical specialist who has led development teams and knows client/server distributed systems inside and out, Cronk says he prefers "to delve into certain details of the technology and the business." He says he doesn't like

Management? Phooey!, page 73

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MANAGEMENT? PHOOEY!

CONTINUED FROM PAGE 71

being "encumbered" by things such as career planning, performance reviews and budgeting.

He no longer has to be. Caterpillar's multiple career paths mean that IS professionals "get paid more than they would otherwise, without us having to bastardize a position, job code or title," says Jim Miller, manager of administrative services at Caterpillar's Corporate Information Services (CIS). Miller was instrumental in formalizing the approach.

Besides a supervisory path, the company introduced an applications path that lets people focus on a specific business applications, such as materials resources planning, and lets them make strategic contributions in that area.

It also created a technical path, which lets people become experts in, for example, operating systems or databases and make more money according to what they deliver to the business.

Before, "we hadn't defined any technical positions beyond senior analyst," Miller says. "But when you have people making extraordinary contributions with technology, we didn't think that was proper."

The company also has made it easier for people to move from IS to finance, marketing and other business lines. And it isn't unusual for people at Caterpillar to cross all three throughout their careers.

It's difficult to measure the impact multiple career paths have had on retention, says John Maddox, CIS career development manager.

That said, there had been "people in the past who left because they didn't have the opportunity for growth because they didn't have the management skills," Maddox says. That's less likely to happen now, he adds.

THE BEST OF BOTH WORLDS

John Pease, information technology architect, is working on his third assignment in 13 months. He could move to a fourth as early as August.

Pease has worked on a large-scale annuities application with hundreds of people. He's built an international life insurance application with four developers. And now he's leading a team of six developers in creating another life insurance application that captures client and product information for "special risk" customers such as professional athletes and truckers.

Moving from contract to contract, Pease is constantly learning new skills and technologies. He has to bid on projects. And his work is charged back to clients on an hourly or monthly rate, which gives him continuous feedback on his performance.

No, Pease doesn't work at Andersen Consulting or Computer Sciences Corp. He works at The Hartford Financial Services Group, Inc., a Hartford, Conn.-based insurance conglomerate.

Creating the most radical shift in corporate IS career paths, companies such as The Hartford are launching in-house consulting units. A year and a half ago, The Hartford created a 340-person IT services firm called Hartford Technology Services Co.

The "firm" competes with internal IT staffers and external services firms for the business of the company's business units and some external projects. The company has no plans to spin it off as a separate entity.

For the right IS people in the right situation, that creates the best of all possible worlds, says Stanley Goldman, CEO of Technology and Business Integrators, a Woodcliff Lake, N.J., company. Goldman is working with several companies to create those types of organizations.

Pease has been at The Hartford 22 years and had reached the top of the technical ladder. His career may not be in its early stage, but all the other advantages certainly hold true.

He says he likes the variety, the ability to "make contacts with a wide variety of people" and "the fact that the value I bring to my job is very tangible."

For a host of reasons, such internal units are still few and far between. Still, The Hartford is hardly alone. Some companies are getting started on a smaller scale.

The Mass Markets division of MCI Communications Corp., for example, teamed up some of its high-level internal consultants 15 months ago, says Scott McIntyre, senior manager of Mass Markets.

The elite technologists tackle everything from the most narrow technical specialty to a very broad perspective, including items having to do with upcoming work with merger partner WorldCom, Inc.

"Many of these people have been managers and could go back to being managers if they wanted to," McIntyre says. "But now they have the opportunity to impact their area of expertise."

In fact, it isn't unusual for the president of their division to ask them to hop on a plane and sit in on an industry discussion.

MORE MANAGEABLE

When Kate Blunk was manager of distribution operating systems at Sears Roebuck and Co., she wore several hats.

"I had to worry about day-to-day support, maintenance, project management, people management, performance reviews — the whole gamut," Blunk says.

It may sound like a typical IS manager's lot. But a division of Sears decided things didn't have to be that way. In February, one of the company's logistics systems organizations began piloting a program that separates project and people management from operations management.

So Blunk can concentrate on people issues such as recruiting, hiring, reviews, skills, goals and training without worrying about deadlines. What's more, she says, she can help open doors for people. "I don't have the focus of getting the project done," Blunk explains, "so I don't say I can't afford to lose them."

The project manager, in turn, can focus on the project itself without worrying about personnel issues.

Meanwhile, an operations manager handles all day-to-day interruptions from people having problems with the system. By creating a management team, the individual IS manager's jobs become more, well, manageable.

The organization is getting projects done more quickly. At the same time, IS staffers have an advocate who can help identify more opportunities for them within Sears. Ideally, that gives them more reason to stay.

Right now, it's still a difficult transition, as people sort out their roles and responsibilities.

"Things aren't perfect yet," says Martha Morrissey, director of Sears' Logistics Systems. "But we're making progress." And if they succeed, they'll roll out the practice to Sears' 1,300-member IS organization. □

Engler is a freelance writer in Arlington, Mass.

IT organization of the future

As IT organizations remove layers of hierarchy, there are fewer opportunities to follow the traditional management route, says Robert Zmuchi, professor emeritus of management and international business at the University of Colorado in Boulder; distinguished scholar in residence at Technology and Business Integrators, in Woodcliff Lake, N.J.; and president of Zmuchi and Associates, a research firm that specializes in information technology organizations.

But don't worry. Here are some emerging career paths to prepare for. Choose the one that matches your "passion."

1) PASSION FOR THE PRODUCT

In the IS organization of the future, almost everything will focus on project management, leading to the creation of a strong project management career path. That path will include junior, intermediate and senior project managers (in some firms they are called product managers).

2) PASSION FOR THE PEOPLE

As IS organizations flatten, some — such as Sears — are creating a coaching role. Coaches are responsible for interviewing, hiring, training, staffing and career development. They may be called resource managers or team coordinators, and there generally is one for every 40 individual contributors.

3) PASSION FOR THE CUSTOMER

Like old account managers, relationship managers are responsible for keeping customers happy and telling them what technology is coming down the road. The customers can be internal, external or both. In some IS organizations, this responsibility is being folded into everyone's jobs, says Bert Bolton, who serves as an educator, facilitator and consultant to both business and IS organizations and is the facilitator of the Northeast Regional Learning Forum for the Society for Information Management.

"I know a CIO [in a multibillion-dollar food processing company] who judges everyone in the organization by how well they did with spending time with external customers," Bolton says.

That includes everyone from computer operators on up. "The higher you go in the IS organization, the more people you need to connect with," he says.

— Natalie Engler

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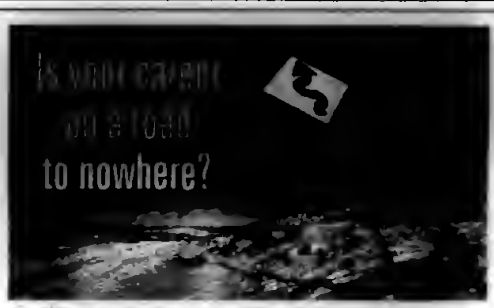

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The young and the restless

Fierce competition is forcing companies to hire more entry-level IT pros and career-changers – and to raid one another

By Linda Wilson

THE SHORTAGE of experienced information technology professionals in the Connecticut job market is turning into really great news for the new crop of college graduates, entry-level IT job candidates and career-changers.

Before last year, "we hadn't hired entry-level people in five years," says Elaine Brodeur, IT staffing advocate in the IT department at Fleet Bank Corp. in Hartford. But many of Fleet's IT hires this year are expected to be newbies or career-changers. "We had trouble finding experienced people," she says.

Apparently so. Of the 10 people in Fleet's training program for cash management systems, seven are career-changers, two are recent graduates and one transferred from another bank department, according to George Barone, vice president of cash management systems.

Fleet isn't alone. The Hartford Financial Services Group, Inc. is also targeting new graduates and career-changers. Last year, the company hired 50 entry-level people, and it plans to hire 75 more this year. Overall, Hartford Financial expects to hire 600 IT professionals this year.

But even entry-level people can be hard to find in Connecticut. For example, take Distributor Information Systems Corp. in Farmington. Alice Martin, director of human resources, did interviews at the University of Connecticut in March. She offered two candidates jobs, but both turned her down. "I have had conversations with the universities, and they tell me that they have fewer graduates and fewer students looking for co-op positions. Some have accepted [full-time] positions in November or December of their senior year," Martin says.

Even when employers do find entry-level people, hanging on to them isn't easy. Intercontinental Hotels Corp. in Stamford found that out the hard way. "We brought in four or five people from college in the last six years, and we lost every one of them to other companies. They got 20% to 25% salary gains after [an average of] 1 1/2 years," says Dennis Fanneron, vice president of corporate systems at the company. He says Intercontinental couldn't match those offers.

The salaries for entry-level IT people reflect the fierce competition in the Connecticut job market. Recent college graduates with some production experience, such as an internship or co-op, garner starting salaries of between $35,000 and $45,000, according to Bob Vissers, a partner at JFW Associates, a recruiting firm in Guilford, Conn.

Stamford companies pay at the middle or high end of the salary range, and firms in New Haven and Hartford pay at the middle or low end. Those three major Connecticut cities all have IT job openings. And each has a distinct environment and business culture.

"Stamford is the most glitzy and congested; Hartford has very, very heavy insurance; and New Haven has a lot of manufacturing," says Mary Ann Salas, president of Super Systems, Inc., a West Hartford recruiting firm.

Programming areas in most demand include Cobol, C++, PowerBuilder, Visual Basic, Oracle relational database management systems, Sybase, SQL Server, Oracle Applications, PeopleSoft and AS/400. Also in demand are database administrators and networking experts.

"It is really the all-around developer who is in demand. The developer who has the ability to analyze a problem and apply technology to solve it and has very good communications skills," says William Lamoin, vice president of systems and technology at Lincoln Life of Connecticut in Hartford, a subsidiary of Lincoln Financial Group in Fort Wayne, Ind.

Of the employers in the state's major cities scrambling to fill IT jobs, those in the Stamford area are having the most difficulty. Here, recruiters and hiring managers compete with Wall Street firms, which pay slightly more.

But IT salaries in Stamford are nothing to sneeze at. Developers with three to five years' experience earn between $70,000 and $90,000, according to Hipp Waters IT Staffing, a Stamford recruiting firm. Top salaries in New Haven and Hartford range from $60,000 to $70,000, and some skills, such as C++, garner premiums, Vissers says.

But retention is a constant headache, according to Michael Shook, IT director at GO/Dan Industries in New Haven, a manufacturer of radiators, heaters and air-conditioning condensers for the automobile industry. "It seems like everyone is looking at their career in six- to 12-month increments," Shook says.□

Wilson is a freelance writer in Glen Ellyn, Ill.

IS SALARIES IN CONNECTICUT

Job title	Salary
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Source: Computerworld's 1997 Annual Salary Survey

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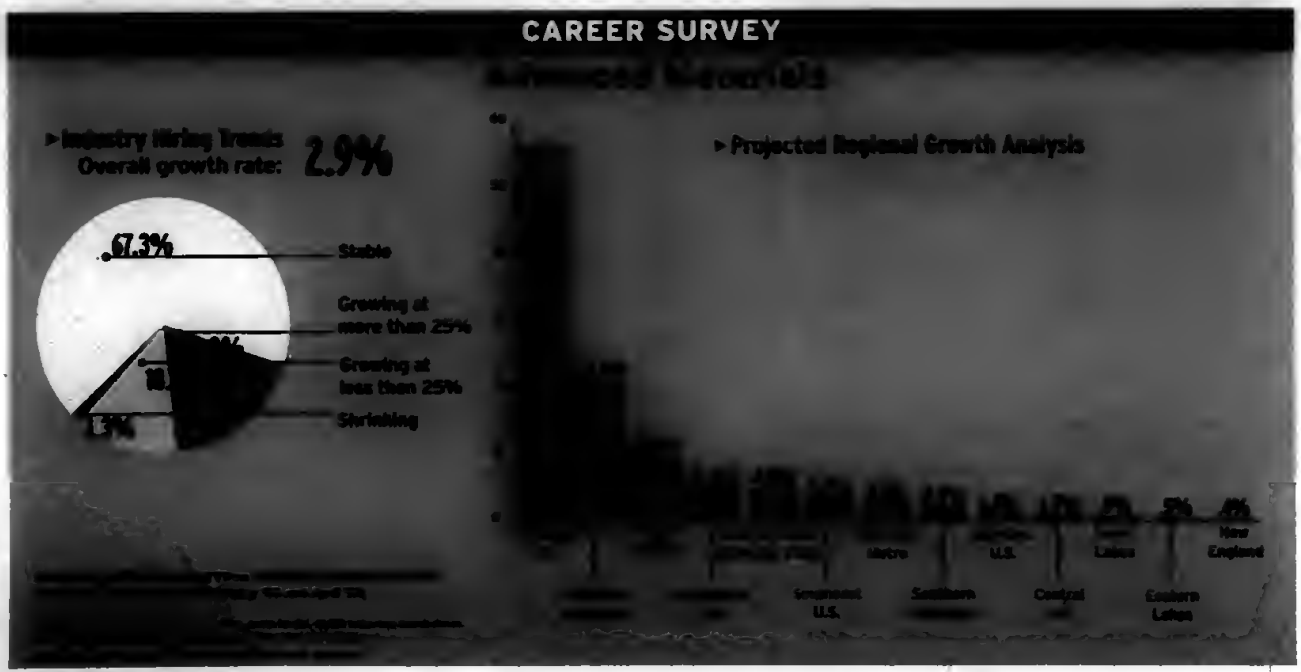

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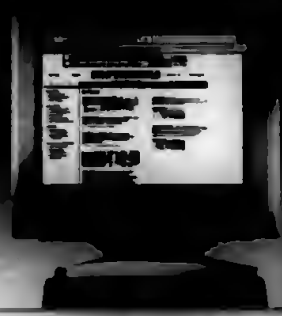

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The Week in Stocks

Gainers

PERCENT

Creative Technology Ltd.	81
Compuware Corp.	17
Computer Network Tech.	7.5
Analysts Int'l	7.3
AT & T	6.5
Intergraph Corp.	5.6
MCI Communications Corp.	5.2

DOLLAR

Stock and Bobbage (H)	5.2
AT & T	3.69
Compuware Corp.	3.31
MCI Communications Corp.	2.81
Sprint Corp.	2.06
Analysts Int'l	2.00
Creative Technology Ltd.	1.50
Learning Co. (The)	1.31
Stock and Bobbage (H)	1.25

Losers

PERCENT

Analog Devices Inc.	-25.4
Shared Inc.	-24.8
Information Technologies Inc.	-24.2
Arbor Software	-22.6
Unify Corp.	-22.2
Network Inc.	-20.1
Informix Inc.	-19.2

DOLLAR

[illegible]	-21.5
Micro Focus	-11.06
[illegible] Corp. (H)	-9.63
Informix Inc.	-9.63
Sybase Inc.	-9.13
Analog Devices Inc.	-8.44
Intel Corp.	-8.44
Arbor Software	-8.13
Hewlett-Packard Co.	-7.56

INDUSTRY ALMANAC

Manugistics' stock falls

It happens often enough. A company says it won't quite meet its earnings expectations, and its stock price slips a bit. But recently when supply-chain management software vendor Manugistics Group, Inc. (Nasdaq:MANU) said it wouldn't meet analysts' expectations for the current quarter, its stock took more than a tumble — it was more like a banana-peel pratfall (see chart).

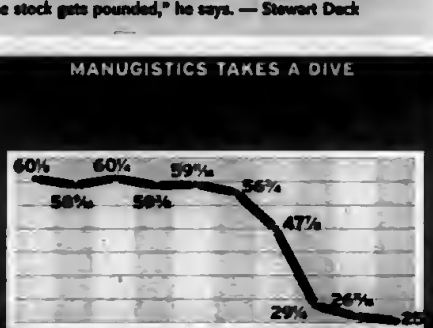
In February, Manugistics proudly proclaimed that its just-completed $62.1 million fiscal quarter was the best quarter ever for any supply-chain management vendor. In 1997, Manugistics posted a $4.3 million profit on $94.7 million in revenue. But that glow faded May 21 when company officials said, without providing details, the quarter ending May 31 wouldn't be so wonderful.

Manugistics chairman and CEO William Gibson pinned the stumble on the aggressive expansion of the company's sales force and "the development and launch of new positioning and sales tools." But instead of soothing analysts, those explanations made them more cautious. BancAmerica Robertson Stephens, a San Francisco-based investment house, immediately downgraded the stock from Buy to Long-term Attractive, in part because of Manugistics' uncertain future.

Eric Upin, an analyst at BancAmerica, wrote in a report published the day after the company's announcement that the poor fiscal results were a "major negative surprise" after Manugistics' upbeat and positive analyst meeting in early May. Upin says the company's troubles may have sprung partly from seasonal downturns and unclosed sales.

David Tekata, an analyst at Grunthal & Co. in Beverly Hills, Calif., says such a stock slide can occur when reality pops analysts' inflated expectations. "If you look at companies with track records of growth, when they finally miss one quarter, the stock gets pounded," he says. — Stewart Deck

MANUGISTICS TAKES A DIVE



Exch	52-Week High	52-Week Low	Stock	Mar 00 Wk Net Close	Wk Net Change	Wk Pct Change
COMS	38.69	26.31	3 COM Corp. (L)	28.81	9.81	-12.7
ArT	50.25	20.13	Ascend Corp	42.38	-0.75	-1.7
ASND	86.06	22.00	Ascend Communications	41.31	-1.44	-3.2
T	66.20	34.00	AT & T	60.81	3.88	6.5
BNYN	13.38	1.66	Banyan Systems Inc	7.88	-0.75	-8.7
BAY	41.20	21.00	Bay Networks Inc	27.75	0.68	2.5
BEL	100.00	67.38	Bell Atlantic Corp	80.88	-0.94	-0.3
BLS	69.25	42.38	BellSouth Corp	64.41	1.53	2.3
BRKT	22.75	9.25	Broadcast Technology	18.75	1.75	8.8
CS	94.88	12.64	Cabletron Systems	15.00	1.25	8.8
CGRM	21.00	8.56	Centigram Communications	12.25	1.00	28.9
CSCO	81.88	41.69	Cisco Systems Inc. (H)	76.19	0.31	0.4
CMNT	6.13	3.31	Computer Network Tech	5.88	0.88	7.5
CNCX	80.06	7.88	Concentric Network Corp	22.00	1.38	6.6
DIGI	32.75	16.88	DSC Communications	11.22	-0.22	1.3
FORE	24.88	15.25	FORE Systems Inc	22.00	1.00	4.8
GDC	9.88	3.25	General Datacomm Indst	6.61	-0.94	16.9
GSX	53.00	36.63	General Signal Networks	41.13	1.88	4.4
GTE	64.38	48.00	GTE Corp	58.88	1.44	2.4
LU	75.06	31.00	Lucent Tech	71.38	0.88	1.6
MADGF	9.19	3.25	Madge Networks NV	6.88	-0.75	11.1
MCIC	53.38	27.31	MCI Communications Corp	51.38	2.81	5.6
NETM	5.25	2.88	NetManage Inc	3.41	-0.31	-8.4
NTAS	5.88	0.63	Netrix Corp	2.25	-0.88	75.4
NCDY	16.50	8.88	Network Computing Devices	8.51	-0.25	-2.8
NWK	22.38	11.63	Network Equipment Tech	15.88	-2.06	11.8
NN	69.38	16.94	Newbridge Networks Corp	28.25	-2.31	-7.8
NT	86.25	30.69	Northern Telecom Ltd (H)	64.56	0.13	0.2
NOVL	11.88	6.25	Novell Inc. (H)	19.63	0.00	0.0
OIDSI	16.88	5.19	Optical Data Systems Inc.	6.25	-0.88	11.5
PCTL	14.13	5.63	Picturetel Corp	9.38	0.61	7.9
PYCN	7.38	0.97	Peritron Inc	1.25	-0.08	4.8
RACO	4.13	1.00	Racotek Inc.	1.29	-0.19	-5.8
RADS	29.38	19.38	Radiant Systems Inc	16.19	2.94	15.4
VBTL	7.63	1.24	Rytec	6.31	-0.75	14.8
SBC	94.56	38.75	SBC Communications	80.38	1.00	2.7
SFA	26.13	14.38	Scientific Atlanta Inc	21.81	1.13	4.9
SHVA	16.44	8.06	Shiva Corp	9.50	-0.94	-9.0
SGN	75.63	54.88	Siebel Corp	72.13	2.00	2.9
QWST	41.00	13.19	Qwest Communications Inc	34.13	5.88	19.8
SMSC	18.13	5.00	Standard Microsystems Corp	10.88	0.31	3.0
USW	58.88	34.38	U S West Inc	50.63	0.13	0.2
XIRC	18.00	8.63	Xircom	13.75	1.00	-0.2
XYLN	31.31	11.88	Xylan Corp	26.25	5.94	14.8
Price and Earnings						
AAPL	31.63	12.75	Apple Computer Inc	20.69	-2.88	-9.7
CPQ	38.75	19.15	Compaq Computer Corp	27.44	5.00	10.0
DELL	38.25	24.00	Dell Computer Corp	63.38	2.31	3.1
CTW	39.25	19.38	Gateway 2000 Inc	33.19	5.38	10.1
HWP	82.38	80.15	Hewlett Packard Co	63.56	1.56	10.4
MUEI	21.38	6.94	Micron Interchange Inc	20.50	1.75	14.2
NIPNY	74.00	48.63	NEC America	51.25	1.00	-5.5
SGI	28.31	10.94	Silicon Graphics	12.38	-0.50	-4.0
SUNW	51.31	38.38	Sun Microsystems Inc	40.63	-2.31	5.4
Large Systems						
DGN	37.94	13.38	Data General Corp	15.00	0.88	0.0
DEC	62.63	32.88	Digital Equipment Corp	53.13	2.81	-4.9
IBM	129.13	81.75	IBM	110.13	-6.75	-5.8
MDCD	6.63	1.13	Meridian Data Inc	5.00	0.63	11.9
NCR	34.88	25.63	NCR Corp	34.13	1.75	-4.9
PRCM	18.63	6.75	ProCom Technology Inc	1.88	-0.25	1.1
SQNT	11.25	11.25	Sequent Computer Sys	16.44	1.75	-9.6
TEXM	8.00	2.00	Texas Micro Inc	3.88	0.00	0.0
SIIA	88.75	51.88	Stratus Computer Inc	38.81	-6.75	-15.5
UIS	26.75	6.38	Unisys Corp	24.88	1.44	5.5
Networking						
ADBE	53.15	53.60	Adobe Systems Inc	41.38	-4.31	-9.3
AMSWA	19.38	6.50	American Software Inc	7.63	-0.13	1.8
APLX	12.50	4.88	Aplix Inc	4.25	-0.94	18.1
ARSW	53.25	28.00	Arbor Software	34.88	-8.13	18.9
ARDT	13.88	6.61	Ardent Software	11.88	1.75	13.2
ARSC	38.38	17.75	Ares Corp	28.19	-2.94	9.4
ADSK	51.13	30.50	Autodesk Inc	42.88	-4.50	-9.1
BMCS	88.31	25.88	BMC Software Inc	45.81	0.88	1.9
BOOL	25.81	13.15	Bowle Inn Bobbage (H)	25.25	1.38	5.2
BORL	11.19	5.88	Borland Int' L Inc	8.88	-0.13	1.4
BOBJY	20.38	6.63	Business Objects	17.00	1.19	6.2
CAYN	4.25	0.94	Cayenne Software Inc	1.97	-0.88	12.5
CNTR	9.31	0.88	Centura Software	2.38	-0.25	-10.3
CHKP	50.50	21.75	Checkpoint Software Ltd	27.50	-4.00	14.1
CDGNF	35.00	17.63	Cognos Inc	23.88	1.56	3.5
CA	61.50	33.19	Computer Associates	57.81	4.00	8.5
CPWR	53.38	21.19	Compuware Corp	44.19	3.31	7.7
CSRE	14.88	4.25	Consensus Inc	8.38	0.31	4.0
COSFF	6.69	1.40	Cosmi Corp	2.25	-0.22	-8.9
DWTI	5.38	2.15	Datawave Technologies Inc	1.13	1.00	24.2
DCTN	59.63	24.88	Documentum Inc	46.44	-0.94	-2.0
FILE	60.25	15.17	Filenet Corp	55.38	-2.38	4.1
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FTPS	6.88	1.88	FTP Software Inc	1.63	-0.06	12.5
GPSI	39.75	20.38	Great Plains Software Inc	34.38	1.44	4.8
HUMC	54.25	24.88	Humming Bird Comm Ltd.	28.00	-2.19	-7.0
HYSW	58.63	11.13	Hyperion Software Corp	33.25	9.38	16.1
IMC	20.00	12.50	Information Resources	17.13	-0.25	1.4
IFMR	12.94	4.00	Informix Corp	6.88	1.19	14.1
INGR	14.19	6.88	Intergraph Corp	8.81	0.47	5.6
LEAF	4.00	1.00	Interleaf Inc	2.94	0.00	0.0
ISLI	29.25	8.00	Intersolv Inc	14.38	-0.75	5.0
INTU	88.94	32.63	Intuit Inc	67.63	1.13	-2.3
JDEC	36.00	24.00	J.D. Edwards Co	34.88	1.13	3.1
TLC	20.00	0.63	Learning Co. (The)	38.63	1.31	4.8
LGWX	14.00	5.38	Logic Works	15.00	-0.13	-0.8
MANU	28.37	25.25	Manugistics Group Inc	29.19	-0.88	-0.2
MAPS	14.25	8.38	Mapinfo Corp	11.75	-0.13	1.1
MRTH	4.63	2.38	MathSoft	3.75	-0.31	-7.7
MENT	11.13	7.38	Mentor Graphics	11.00	-0.38	3.3
MFCY	60.63	25.00	Micro Focus	44.00	11.56	40.6
MCXI	14.00	5.00	Microlabs Inc	10.00	1.00	11.2
MSFT	99.13	58.75	Microsoft Corp	85.88	9.88	4.3
OBJS	5.25	0.94	ObjectShare, Inc	5.06	-0.31	-9.0
ORKTL	75.00	7.94	Oracle Ltd	7.94	1.00	11.2
ORCL	42.13	17.75	Oracle Corp	23.00	-2.00	-7.3
PMTC	35.25	19.00	Parametric Technology	31.38	1.56	-4.7
PSFT	57.94	23.56	Peoplesoft	43.88	5.44	11.1
PTEC	18.38	9.88	Phoenix Technologies (L)	10.25	1.31	11.4
PSQL	25.88	7.63	Platinum Software	19.63	1.00	-4.8
PLAT	31.13	12.63	Platinum Technology	24.88	0.88	1.4
PROS	24.63	15.75	Progress Software Corp	22.00	0.63	2.9
RNBO	30.00	25.00	Rainbow Technologies Inc.	26.00	0.88	1.8
REDB	11.63	3.00	Red Brick Systems Inc.	5.88	-0.31	-5.3
ROSS	9.88	2.00	Ross Systems, Inc	4.75	0.13	2.7

Exch	52-Week High	52-Week Low	Stock	Mar 00 Wk Net Close	Wk Net Change	Wk Pct Change
SCOC	7.75	3.13	SCO Inc	5.00	-0.94	-15.8
SDYN	44.38	20.13	Security Dynamics Tech	20.24	1.24	-14.8
SSW	29.50	15.15	Sterling Software Inc	24.88	-0.88	-3.2
SDRC	38.00	25.25	Struct Dynamics Research	24.81	0.25	2.1
SYBS	23.63	0.88	Sybase Inc	1.97	-0.06	3.4
SYMC	52.63	17.00	Symantec Corp (H)	23.94	-6.44	-21.2
SNPS	47.11	29.19	SynOpsys	41.88	1.25	3.3
SSAR	17.63	6.31	System Software Assoc	7.38	1.81	19.3
SYSF	14.50	1.63	Systemsoft Corp (L)	1.91	-0.47	-19.7
RAANF	55.38	28.31	The Baan Co	34.75	0.63	1.8
TRUV	5.19	1.63	Truevision Corp	2.88	-0.25	1.5
VNAS	65.25	15.00	Vanstar Inc	15.38	-0.94	2.8
VSIO	30.88	25.75	Visio Corp	28.75	0.25	0.5
WALK	60.44	13.00	Wacker Interactive Systems	15.38	-1.13	-6.8
WALL	29.19	11.31	Wall Data Inc	26.88	-1.00	-0.2
WANG	52.25	18.63	Wang Laboratories Inc	24.13	-2.19	-8.1
Software						
AMZN	100.00	15.75	Amazon.com	40.56	-2.88	-2.8
AOL	20.25	24.63	America On-Line	84.00	-2.31	-2.7
ATHN	67.00	16.63	At Home Corp (H)	25.19	-9.63	-21.5
EBAY	32.13	20.38	Ebay Corp	20.38	5.00	-22.2
EGHT	89.31	8.88	Egghead Inc	54.75	5.75	-8.5
SEEK	45.00	4.88	Infoseek Corp	23.88	-6.81	22.2
LCOS	75.13	31.19	Lycos Inc	54.25	-8.63	-13.1
NSCP	49.38	10.88	Netscape Comm Corp	24.13	-6.44	30.5
NTOL	38.06	11.75	Network Solution Inc	26.88	-6.75	-19.7
OMKT	28.13	8.63	Open Market Inc	10.75	1.88	19.8
PEGS	31.88	12.88	Pegasus Systems	18.25	0.88	3.4
PSIX	13.25	4.25	PSINet	11.88	1.88	-6.8
QDEX	5.38	1.19	Quotedotcom Corp	1.38	-0.19	-12.0
SCUR	15.25	5.38	Secure Computing Corp	26.88	1.88	-8.7
SPYG	15.38	6.88	Spyglass Inc	9.75	1.88	-9.8
YHOO	129.63	28.63	Yahoo! Inc	108.25	8.13	-7.8
Semiconductors						
AMD	43.63	17.13	Advanced Micro Devices	28.75	3.50	19.1
ADI	59.63	25.75	Analog Devices Inc	24.81	-8.88	-25.4
CRUS	57.75	9.38	Cirrus Logic	20.88	1.88	9.8
CY	18.94	1.38	Cypress Semiconductor Corp	8.88	-0.56	-6.2
INTC	102.00	67.38	Intel Corp	72.88	-6.44	10.1
LSCC	24.88	18.38	Lattice Semiconductor	18.38	-0.56	14.8
LSI	44.38	18.63	LSI Logic Corp	21.44	1.63	7.8
MCRL	24.88	21.38	Micrel Semiconductor Inc	21.75	-4.75	13.8
MU	88.88	22.00	Micron Technology	23.63	3.63	13.3
MOT	88.38	52.00	Motorola Inc	53.31	-3.88	-8.8
NSM	42.88	25.75	National Semiconductor (L)	26.38	-0.88	3.3
QUIC	28.75	27.75	Quantum Inc	28.88	-4.75	18.8
TXN	71.25	39.63	Texas Instruments	31.75	7.38	12.1
VLSI	33.88	25.75	VLSI Technology (L)	31.75	5.88	17.8
XLNX	57.63	28.88	Xilinx	38.31	9.88	12.8
Systems						
ADPT	54.25	35.56	Adaptec Inc (L)	25.63	1.31	-7.7
APCC	24.38	38.88	American Power Conversion	28.38	-2.19	-7.1
ANDA	2.81	0.94	Andataco Inc.	1.88	-0.24	-17.2
CREAF	89.38	34.75	Creative Technology Ltd.	28.88	1.38	8.1
DACE	38.63	8.88	Data Race Inc	1.88	0.88	88
DTM	11.88	7.88	Datatec Corp (H)	12.88	1.38	-11.9
EMC	47.63	18.88	EMC Corp	41.88	3.25	-7.2
EMLX	21.75	7.38	Emulex Corp (L)	9.50	-0.88	-4.8
ESCC	38.88	24.88	Exabyte and Subsidiaries	25.25	1.31	-4.9
EXBT	15.75	5.63	Exabyte	8.88	1.50	-12.5
HSFD	5.63	2.88	Intelligent Info. Systems	2.88	-0.38	-38.6
IOMI	16.75	8.31	Iomega Corp	8.50	1.13	13.3
KMAG	35.13	9.81	Komag Inc	9.81	3.25	-24.9
MTSI	14.88	11.88	Micro Touch Systems Inc	16.38	1.99	-8.1
MTIC	17.63	4.25	MTI Technology Corp	11.88	-2.88	15.3
AQM	25.88	2.25	QMS Inc	4.88	0.88	1.4
QNTM	41.25	17.75	Quantum Corp	21.88	1.75	7.4
RDUS	8.13	1.88	Radius Inc	2.25	-0.13	-4.8
SEG	50.38	17.75	Seagate Technology	34.88	1.50	-3.9
SOIS	14.25	4.75	Storage Computer Corp (L)	4.75	-0.19	6.2
STK	28.75	28.38	Storage Technology (H)	43.88	-0.63	-0.7
TEII	14.19	35.56	Tricord Inc	38.13	-3.88	-6.2
WDC	34.75	14.88	Western Digital Corp	19.88	-2.56	13.1
XIRC	115.00	60.00	Xircom Corp	108.25	-4.31	-4.8
Services						
AMSY	30.00	17.63	American Mgmt Systems	27.15	1.25	-4.4
ANLY	38.88	20.38	Analysts Int'l	20.20	2.00	7.9
AUD	20.88	28.56	Audio Data Processing	63.00	1.94	3.0
CATP	57.38	28.20	Cambridge Tech. Partners	30.34	-8.97	-3.8
CEN	61.88	33.13	Ceridian Corp	54.19	9.20	-8.2
CDO	94.56	23.38	Cognizant Inc	88.25	9.57	12.8
CPU	38.00	19.69	CompUSA Inc. (L)	25.00	1.88	10.7
CMRZ	52.56	25.75	Computer Horizons	33.94	-0.19	13.4
CSC	56.75	33.63	Computer Sciences	51.75	1.38	-6.1
TSK	49.38	28.63	Computer Task Group	30.25	1.13	1.4
EGGS	12.75	1.75	Egghead Discount Software	8.13	1.38	15.6
EDS	38.88	29.56	Electronic Data Systems Corp	38.31	1.88	2.1
ICO	39.63	32.63	Imacon Corp	32.63	-3.88	9.4
REA	38.44	34.00	Reuters Inc	34.25	-2.75	5.7
MICA	29.75	18.88	Mercantile Inc.	13.88	1.13	7.8
PAYX	38.63	21.67	Paychex	25.25	-0.63	9.2
PMS	87.00	46.38	Policy Management Sys.	83.44	-7.00	-3.6
REY	24.00	19.75	Reynolds and Reynolds	20.67	1.19	5.4
SAPE	51.00	21.38	Sabre Corp	23.88	0.06	0.0
SCBI	14.75	6.50	SCB Computer Tech. Inc	11.88	0.06	0.5
SEIC	75.00	21.00	SEI Corp	80.94	-2.56	3.7
SMED	83.00	63.50	Shared Medical Systems	72.19	-2.75	-3.7
SSPE	24.25	10.88	Software Spectrum Inc	19.88	0.81	5.5
SDS	38.88	20.75	Standard Data Systems	26.88	-0.44	1.3
SYNT	24.25	18.00	Syntel, Inc	19.00	5.88	-21.8
VST	19.88	8.50	VanStar Corp	14.25	0.38	-5.4

KEY (H) = New annual high reached in period (L) = New annual low reached in period

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Users to Microsoft: Don't forget NT 4.0

▸ *Will delay 5.0 upgrade, ask to keep 4.0 support*

By Sharon Gaudin

CORPORATE USERS have a message for Microsoft: Don't leave us hanging without support for Windows NT 4.n.

Many IS shops are putting NT 5.n migration plans on hold until their companies take care of year 2000 issues.

Meanwhile, they want assurances that Microsoft will fully support their NT 4.0-based installations. But whether the software maker will do that appears to be the subject of some debate.

That could be a problem for corporate users. A senior vice president at Microsoft Corp. recently stressed that the company would focus on making tools and software for NT 5.n and that it will move support away from NT 4.n in the not-so-distant future.

Jim Allchin, senior vice president for personal and business systems at Microsoft, told an audience of corporate users at Gartner Group, Inc.'s recent NT conference in San Francisco that he isn't sure how long Microsoft will continue to support NT 4.n once NT 5.0 hits the streets sometime next year.

CENTRAL SITE

That's because new software and tools created to work with Active Directory in NT 5.n won't work all that well with NT 4.0, which doesn't have Active Directory.

The directory gives users a centralized place to find a listing of what is running in the system.

"As soon as [users] start working with the directory, it will be hard for them to run on past versions," Allchin said. "All of [Microsoft's] applications will be revved to work on the directory, so it will only be a matter of time before we have to move on." But some users are having none of that.

"Microsoft shouldn't push too hard," said Jeremy Lanctot, a senior process engineer at Honeywell, Inc. in Minneapolis.

"Microsoft had better be there for us," Lanctot said. "Doing an upgrade is a major support issue for us. We're just trying to centralize now on NT 4.0 on the desktop, so I don't see us moving to NT 5.0 anytime real soon."

Ed Schaider, an analyst at The Standish Group International, Inc. in Dennis, Mass., said some NT users will find themselves in the same position as those still holding on to Windows 3.1.

"Microsoft will back off support [for NT 4.0] much like they did for Windows 3.1, and there's still a tremendous amount of Windows 3.1 deployment," Schaider said. "Some new software development tools won't work with users' older version [of NT], so the users will just live without the new software [and NT 5.0]. They'll figure NT 4.0 is working for them and it's the least of their problems."

But Paul Soares, general manager and senior vice president at Alden Buick Pontiac GMC in Fairhaven, Mass., and a member of the GMC Access Council, which oversees the company's communication network to all of its dealerships, doesn't want a loss of support to become a problem.

"How can I force people to change. We've got cost pressure coming at us all over the plac
- Paul Soares
Alden Buick

"If they pull support off too soon, that would be a real issue for me," Soares said. "You can't force people to change. It's not like it's free. We've got cost pressures coming at us all over the place."

Soares said the GMC Access network expects to upgrade to NT 5.n fairly soon after its release, but year 2000 problems could slow that down. □

A COMPANY IN THEIR SIGHTS

Almost 80% of finance executives consider Microsoft a threat to their companies, with 44% naming Microsoft a direct competitor, according to a Forrester survey

Which Microsoft initiatives compete with your company?

MSFDC (bill-paying service)	36%
Investor (investment research site)	36%
Money (financial management software)	28%
Money Insider (financial planning site)	12%
Open Financial Exchange (specification for exchanging financial data over the Internet)	8%
Internet Finance Server (online transaction software)	6%

Base: Executives at 50 financial services firms; multiple responses allowed

Source: Forrester Research, Inc., Cambridge, Mass.

Monopoly fears broaden

CONTINUED FROM PAGE 3

crosoft-approved dealers at its CarPoint site, sells airplane tickets at its Expedia site and hawks entertainment advertising at its Sidewalk site. And within a year, the Redmond, Wash.-based vendor wants to start real estate and online billing services (see story at right).

But Microsoft's presence isn't the issue. What concerns companies in those markets is that the icons for the Microsoft sites will get key placement on desktops with the Windows 98 operating system and Internet Explorer browser.

Among some financial executives, for example, the fear isn't that Microsoft will become a bank, but that the vendor will wedge itself between Web users and other companies that offer financial services online, said Frank Goldberg, chairman of CompuBank in Houston. CompuBank is an online bank slated to be launched this summer.

TOUGH TO CHANGE

In an antitrust lawsuit filed two weeks ago, the U.S. Department of Justice charged that Microsoft's control of how the first desktop screen looks and its melding of the Internet Explorer browser with Windows aren't fair and limit consumer choice. But the suit doesn't explicitly address online commerce.

Adding such charges to the suit would be difficult, legal experts said. Much of what has riled Microsoft's online competitors is the fear of what havoc the vendor could wreak, but hasn't yet. Business at some of Microsoft's Web sites — but not all — is growing, but the company by no means dominates online car sales, classified advertising or travel reservations.

"The government isn't likely to go against Microsoft with charges that are based on fears and not actual events," said Rich Gray, an intellectual property and antitrust lawyer at Bergeson, Eliopoulos, Grady and Gray LLP in San Jose, Calif.

"What we don't want to happen is having to undo something, like the Justice Department is trying to undo the first-screen issue," countered Terry Jones, chief information officer of Sabre Group, Inc., a major airlines reservations company in Dallas.

If Microsoft has used monopoly power in PC operating systems to push its own browser, as the government alleges, then it could also use that power to push its own Web sites, Jones maintained.

"We want to stop [that] from happening in the first place," Jones said, if not by lawsuit, then by congressional resolution or law.

Although the antitrust suit is more narrow than some had hoped, online merchants may still be able to eke out relief if the government wins on all its claims, said Mike Pettit, head of ProComp, an anti-Microsoft lobbying group in Washington. ProComp includes software makers and noncomputer companies, such as Sabre and publisher Knight-Ridder New Media.

Judge Thomas Penfield Jackson could order Microsoft to loosen restrictions on the items that can be shown on Windows' opening screen, Pettit said. That would presumably give other players more access to that coveted space.

Government officials said they will continue to investigate other Microsoft products and practices. Microsoft's use of the Java environment, for example, is a likely target. Java was mentioned in the federal complaint, but no specific charges were filed. □

Forging ahead

Antitrust suit or no antitrust suit, Microsoft has grand plans for its Web businesses.

Take Expedia, Microsoft's travel reservation site (*www.expedia.com*), for example.

Today, it gives users simple answers to queries such as, "What flights are available at this time on this day?"

But next year, Microsoft wants to add a feature that will make suggestions about how to get lower fares, said Josh Hirst, Expedia's group product manager.

And at CarPoint, shoppers can research car prices, reliability ratings and other data before selecting a dealer to visit in person from among the 1,800 that Microsoft has approved (*carpoint.msn.com*).

Business is growing so fast that Microsoft had to add 300 more dealers in the past 45 days to keep up with demand, said Alex Simons, CarPoint's product manager.

CarPoint drove $200 million worth of business to its member dealers in March, he added.

"They are a new wrinkle in car shopping. But rather than feel threatened by referral services like CarPoint, dealers have decided to take advantage of them as they bring in business," said Mike Morrissey, a spokesman at the National Automobile Dealers' Association in McLean, Va. "Using the Internet is the wave of the future for car shopping."

Elsewhere, Microsoft and partner First Data Corp. plan to launch MSFDC, a bill-presentment and paying service, by year's end. MSFDC hopes to convince telephone companies, electric utilities and others to hand over customer billing tasks. MSFDC then would bill consumers and process payments electronically, taking a fee for each transaction.

Microsoft also plans to offer soon an as-yet unnamed house-buying and mortgage information Web site. — Kim S. Nash and Bob Wallace

FTC expected to sue Intel

CONTINUED FROM PAGE 1

Wintel platform will continue to lock down 90% of the nation's desktops.

Still, many users don't want the government tampering with the simplicity and predictability of their desktops (CW, May 25).

CLOSE TO THE VEST

The FTC wouldn't comment on any investigation. Intel spokesman Chuck Mulloy said reports are incorrect that the company, under pressure from the government, has eased some restrictions on sharing its technology with PC makers.

"There are a lot of reports that we may be doing something different," he said. "But we've always licensed on a value-per-value basis. We must get returns for cross-licensing Intel property."

Specifically, the alleged suit is expected to tackle the issue of whether Intel, during disputes with several companies, cut off critical technological information to those companies and so hurt their business.

In a separate ongoing suit, a federal judge this month ruled that Intel abused its monopoly power by keeping information about its Pentium II microprocessors from Intergraph Corp. to prevent the company from competing with Intel graphics chips. In a preliminary ruling that received a lot of attention, the judge said Intel had behaved in a monopolistic manner and ruled that the company had to provide Intergraph with advance product information. Intel is appealing the preliminary injunction.

RESTRICTED ACCESS

And last year, Digital Equipment Corp. accused Intel of denying it access to chip specifications and threatening to stop its supply of microprocessors while the companies were embroiled in a legal dispute. Those charges were resolved through a settlement in which Digital, now owned by Compaq Computer Corp., agreed to sell its semiconductor assets to Intel for $700 million.

Intel's customers may have issues, but some users said Wintel has benefited corporations by providing an easy-to-use, affordable platform standard. Phil Easter, technology strategist at Greyhound Lines, Inc. in Dallas, with 12,000 users companywide, said an antitrust suit against Intel would be "annoying" for end users and the industry as a whole. "You can't blame Intel for developing a chip that's popular because the IBMs and Microsofts have decided to use it on their platforms," he said.

Even if Intel is a monopoly, users have still benefited, said Paul Gross, vice president of information systems at Atlantic Container Line in South Plainfield, N.J. "Costs are always lower, and power is always more" for Intel-based machines, Gross said. "And other chip makers have found success, too. I don't see the problem."

One example of the competitiveness in the chip market is Advanced Micro Devices, Inc., which last week took another swing at rival Intel in the sub-$1,000 PC market with its high-performance AMD K6-2 processor.

"I'm fed up with hearing about the government and antitrust cases," said Christopher Crocker, a network engineer at Restaurant Consulting Services, Inc., the information technology arm of Daka International, Inc. in Danvers, Mass.

"The saturation level is right up there with independent counsel Ken Starr and Monica Lewinsky. And Intel's approval rating, like President Clinton's, will remain high," Crocker predicted.

Still, Crocker said both sides have legitimate points: "I can see the government's case — Intel may have an unfair advantage over rival chip makers. And I can see Intel's point — they spent millions of [research and development] dollars and hold the patents. Why should they give away everything for free?"

Joe Sims, an antitrust lawyer at Jones, Day, Reavis & Pogue in Washington, said Intel's problem is much narrower in scope than Microsoft's. He said the outcome will depend on whether the FTC considers the case a limited patent dispute with a vendor, which he considers a "pretty thin reed to rest a monopolization case on," or a larger case that assumes Intel used patent disputes as "a sham to hurt its competition." □

Senior editors Laura Didio and Kim S. Nash contributed to this report.

IS mulls management priorities under year 2000 pressure

CONTINUED FROM PAGE 1

Data Corp. (IDC) in Framingham, Mass., 43% of IS managers have pushed back other efforts to give more attention to their year 2000 efforts.

But savvy managers instead may accelerate such projects to tackle date-related problems in distributed devices. "Year 2000 is both a driver and an inhibitor for these projects," said Dick Heiman, an analyst at IDC.

TOOL KITS

Integrated tool kits from vendors such as Computer Associates International, Inc., Hewlett-Packard Co. and Tivoli Systems, Inc. can help find and fix problems in far-flung PCs, servers and network gear, Heiman said, "but only if you start in time."

At J. P. Morgan & Co., the rollout of CA's Unicenter management software "and basically everything else" had to defer to top-priority year 2000 fixes, said Bill Oris, an IS vice president at the New York bank.

Brian Robbins

The Internal Revenue Service, now evaluating enterprise management software from both CA and Tivoli, may have to put that project on hold. "We're down to the wire for dealing with year 2000," said Jack Brown, chief of transmittal and control, "so managing distributed systems may have to take a backseat."

But even organizations whose year 2000 efforts are "well-planned or under control" are putting "any kind of major infrastructure technology upgrade on the back burner until this passes," said Herb VanHook, an analyst at Meta Group, Inc. in Westport, Conn.

Faced with a choice of which projects to delay or reduce, IS will pick what is necessary for business over what would be nice for business, said David Passmore, president of Net-Reference, Inc., a consultancy in Sterling, Va.

But leaders at Eastman Kodak Co. in Rochester, N.Y., are shifting their long-range plans for controlling 40,000 PCs, 400 LANs and 2,000 servers to confront year 2000 compliance throughout the global network.

For the past two years, Kodak's implementation of tools from Tivoli and other vendors has focused on managing clients, servers and applications that support R/3 modules from SAP AG. But management shifted a team from the R/3 effort and devoted it to year 2000 problems, said Dave DeMarco, enterprise management project manager at Kodak.

He faces a big task. With just one-tenth of the nodes currently managed by Tivoli software, Kodak's IS team must install management agents in all remaining systems.

Then central managers can inventory all hardware and software configurations and update systems that need upgrades.

Big management rollouts certainly mean big headaches, but IS planners may consider turning their strategic plans into tactical ones to handle year 2000 problems, said Chip Gliedman, an analyst at Giga Information Group in Cambridge, Mass.

"Just implement point products for audit, remote control and software distribution, or those pieces of a big framework," Gliedman said. "That can immediately help you deal with the year 2000 issue out in the LANs." □

What projects may be delayed or reduced to tackle year 2000 compliance?

73%	Major application rollouts
68%	Network upgrades
68%	User hardware upgrades
66%	Server/host upgrades
60%	System software upgrades (operating systems, management tools)
47%	Development software upgrades
47%	Internet application development

Base: 172 U.S. IS managers out of 400 who said they were delaying or reducing projects; multiple responses allowed

Source: International Data Corp., Framingham, Mass.

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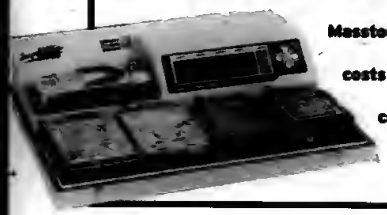
Dispatches & images from the fringes of the electronic frontier

LOAD WINDOWS NT IN 30 SECONDS

One of the most dreaded and costly tasks in the IT field — besides fixing date fields — is loading software upgrades or suites on thousands of PCs. So Intelligent Computer Solutions in Chatsworth, Calif., offers a portable, high-speed contraption that, for example, loads Windows 95 or Windows NT 4.0 on to four hard drives in about 30 seconds. The image Masster 2000 duplicator costs $3,985. It might come in handy when NT 5.0 arrives.

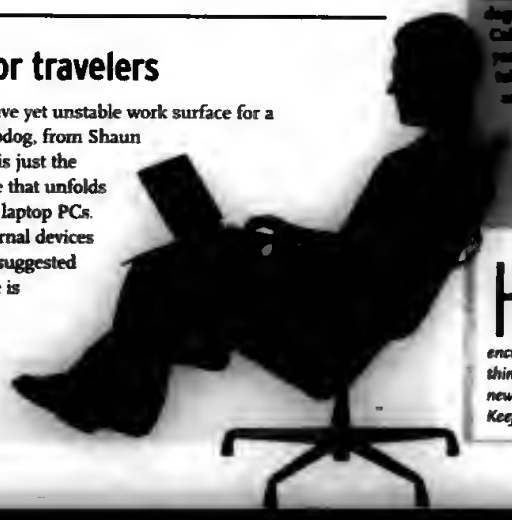


The cure for computer brain drain?

Ai Larson, author of *Your Electric Life* (*www.cashinonchaos.com/hans*), says computer monitors and TVs produce a "downward-flowing vortex" of electrical current that leaves users feeling drained and stressed. The cure: Place four small "energy traps" on the monitor to convert the negative vortex into a positive one.

A comfy "Lapdog" for travelers

The human lap makes an inexpensive yet unstable work surface for a $5,000 piece of machinery. The Lapdog, from Shaun Jackson Design (*www.sjdesign.com*), is just the opposite. It's a padded carrying case that unfolds to create a nonslip work surface for laptop PCs. The pockets can hold batteries, external devices and diskettes. The suggested retail price is $129.95.



Digital archives

50 YEARS AGO
(JUNE 1948)

- The first computer that can run a program stored in electronic memory is created at the University of Manchester in England. The Small-Scale Experimental Machine fills an entire room and has 1,024 bits of memory.
- Bell Labs holds a press conference in New York to announce the invention of the transistor.

20 YEARS AGO
(JUNE 1978)

- Apple Computer introduces Disk II, a 5.25-in. floppy disk drive that costs $495. Two employees handle production, turning out 30 drives per day.
- Intel introduces the 4.77-MHz 8086 microprocessor, which has 29,000 transistors, for $360.

Inside Lines

Security was high

Vice President Al Gore wasn't there this time, but Microsoft's security team was in overdrive last week at the company's CEO Summit. The summit ostensibly, where CEOs from about 100 of the world's biggest companies schmooze with CEO Bill Gates, was tightly orchestrated. Guards patrolled hallways, and men with earplugs like secret service agents questioned wayward passers-by about their destinations to make sure they didn't get too close to the business royalty.

But political posturing was low

At a brief Q&A at Microsoft's CEO Summit, Chairman Bill Gates refused to answer questions about the antitrust suit he's fighting with the Department of Justice and no states. And Gates claimed none of the 100 or so CEOs in attendance even asked him about it. He also declined to lend advice (at least publicly) to Intel buddy Andy Grove, who also may soon face antitrust charges by the Federal Trade Commission (see story, page 1).

With friends like these

John Dillon, Arbor Software's CEO, showed up as scheduled last week at a press conference held by Walker Interactive Systems, which runs its analysis applications on Arbor's multidimensional database. But just one day earlier, Arbor announced plans to merge with Walker rival Hyperion Software (see story, page 8). After everyone insisted they were still friends, Dillon said his timing could have been better. "If there was any way for us to postpone the [Hyperion] announcement, we would have. But we didn't have any choice," he said.

Now that's a low blow

Microsoft came in for a bit of bashing by industry executives at the Harvard University Internet conference this week, fueled by the fact that Steve Ballmer, Microsoft's executive vice president, was the only VIP who didn't show up in person but spoke via cybercast. "He was afraid it would turn into *The Jerry Springer Show*," joked Sun Microsystems CEO Scott McNealy.

Drudge makes his presence felt

It isn't every day you see Matt Drudge, the self-described gossip manger, at a Harvard confab of bigwigs on the Internet and society. But the online scribe was there last week as a panelist, championing news stories based on a single unconfirmed source as he chided mainstream media honchos to take one-man Web publishers like himself seriously. His spiel didn't win many establishment fans, however, and led author and technology diva Esther Dyson to diminutively call Drudge's work "pernicious."

Mouse pointer art

Eight larger-than-life plastic sculptures of Apple Computer's signature icons — the mouse pointer, the hourglass and Chevis the dogeye — no longer greet visitors at the company's Cupertino, Calif., headquarters. Apple removed them last week after six years in a bid to change the corporate decor. But something will take their place because the city requires Apple to have public art — which the plastic icons apparently qualified as — in its public greens. No word yet on what. And reaction to the departure of these icons was mixed: Some liked the computer screen emblems, but others thought they were just tacky.

How hot is the encryption issue? David Tennenhouse, IT director at the Defense Advanced Research Projects Agency, was speaking at a panel on Internet telephony when a question arose about securing Internet-based phone calls with encryption. He could only reply, "Oh, no. Oh, no. Not the crypto thing." Well, you can send Computerworld any little thing or news tip, big or small. Just get in touch with news editor Patricia Keefe at patricia_keefe@cw.com or (508) 820-8183.

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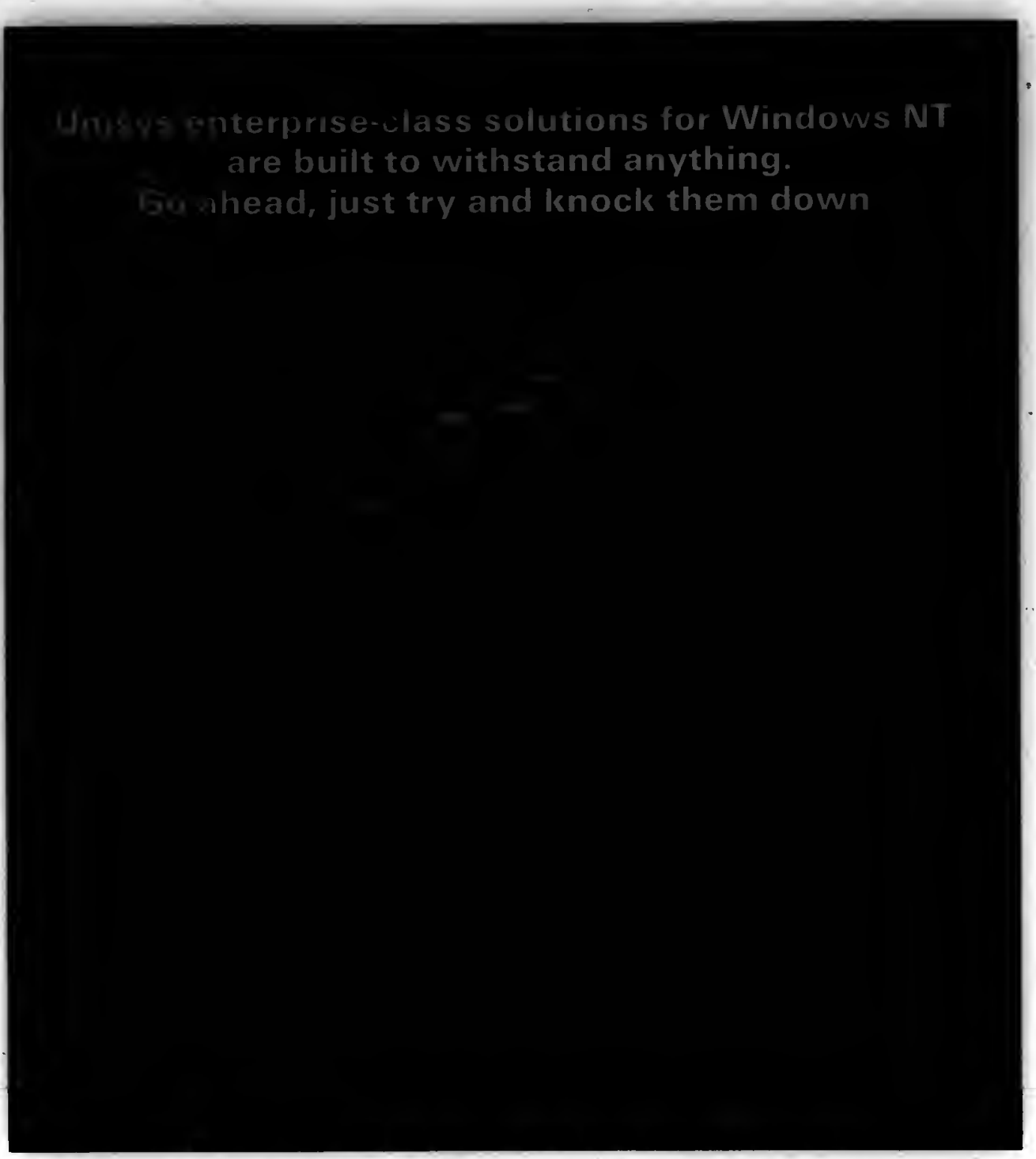

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